OCTOBER 11, 1954

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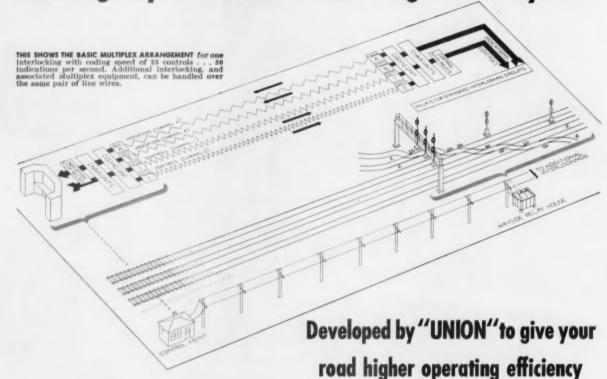
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October 11, 1954

Vol. 137, No. 15

Week at a Glance

Railroad earnings continue poor as compared with 1953; net income for eight months was less than 60 per cent of that in the corresponding period last year. But results for August alone look just a trifle better—relative, that is, to the earlier part of this year.

Fewer passes — or none at all — will be issued for business travel by representatives of other railroads, under a new policy just adopted by the Pennsylvania. The New Haven also intends to "tighten up"; at least one other large eastern road may do likewise.

FORUM—Car ownership declines—shortages continue. Materials are available and car shortages still exist, but little attempt is being made to increase ownership—yet, when the need for cars becomes acute, builders will be flooded with "rush" orders beyond their ability to provide normal delivery.

Weighing ore by electronics—using an electronic computer—is being tested by the Great Northern and shows promise of increasing speed and efficiency of a complex transportation job.

Dirty work in the "dust bowl" has been simplified on the MP where a power broom and other mechanized equipment are used to remove wind-blown material from track and right-of-way.

Why is damp rail slippery? Just 'cause it's wet? Nope. You'll get better driver-rail adhesion during heavy rains than on misty mornings. The key to the mystery is a practically invisible oil film on the rail.

Everybody's on the "intercom" at the T&P's New Orleans freighthouse—and no wonder; new system, eliminating switchboard, yet completely flexible, is a real time and work saver.

38



Current Statistics

Operating revenues, eight month	hs
1954\$	6,193,871,103
1953	
Operating expenses, eight month	hs
1954\$	4.939,611,628
1953	
Taxes, eight months	
1954\$	583,988,932
1953	862,092,653
Net railway operating income, ei	
1954\$	500,409,102
1953	744,877,972
Net income, estimated, eight mon	
1954\$	337,000,000
1953	571,000,000
Average price railroad stocks	,,
October 5, 1954	70.88
October 6, 1953	56.88
Carloadings, revenue freight	
Thirty-nine weeks, 1954	25,031,172
Thirty-nine weeks, 1953	29,066,430
Average daily freight car surplus	
Week ended Oct. 2, 1954	60,634
Week ended Oct. 3, 1953	7.246
Average daily freight car shortag	
Week ended Oct. 2, 1954	3,144
Week ended Oct. 3, 1953	5.393
Freight cars on order	-,
September 1, 1954	13,013
September 1, 1953	45,735
Freight cars held for repairs	
July 1, 1954	120,104
July 1, 1953	95,768
Average number of railroad emp	
Mid-August 1954	1,070,471
Mid-August 1953	1,236,702
	1,200,702

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX, THE ENGINEERING INDEX SERVICE AND THE PUBLIC AFFAIRS INFORMATION SERVICE. RAILWAY AGE INCORPORATES THE RAILWAY REVIEW, THE RAILWAY AGE GAZETTE, AND THE RAILWAY AGE GAZETTE.

Departments

Competitive Transport	19
Education	8
Figures of the Week	7
Financial	11
Forum	15
Labor & Wages	8
Law & Regulation	20
Operations	9
Organizations	8
People in the News	11
Questions and Answers	16
Railway Officers	12
Securities	12
Supply Trade	11

Week at a Glance CONTINUED

BRIEFS

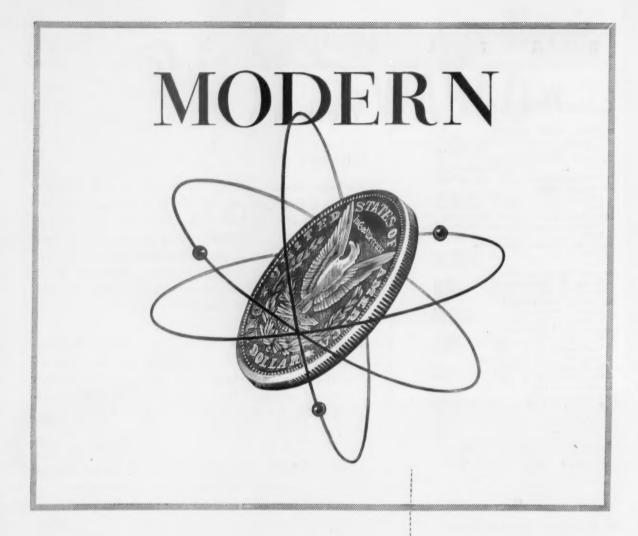
Perhaps business does "follow the service," despite what cynics say. A 2% increase in LCL freight revenues between 1950 and 1953 was the happy experience of the B&O, compared with a 9% decrease for the railroad industry as a whole. Speaking before the New York Society of Security Analysts, President H. E. Simpson said these figures confirmed widespread shipper acceptance of "time saver service."

Breakfast at Buffalo October 21, with the Railroad Frontiersmen as hosts, promises to be something exceptional, with 21 brotherhood chiefs and 37 Eastern railroad presidents invited. It is just one of the events scheduled for Buffalo Railroad Week (Railway Age, September 13, page 12).

October 12 will mark the 20th birthday of the Association of American Railroads, whose 196 members make up more than 95% of the railroad industry.

"Nuclear-powered aircraft are not far off," says the weekly magazine, American Aviation. It adds that "problems are many and progress is slow . . . but stakes are high." Predictions quoted from technical and military sources range from "six or seven years" to "a generation away." One airline spokesman foresees "atom transports with 800 mph speed within 15 years," while another publication is quoted as saying: "A plane powered by nuclear energy has had a successful trial run. . . . Many refinements must still be made—but it flies."

Payroll deduction plans for sale of United States savings bonds cost 75 railroads about \$473,420 a year. The 75 roads are those which submitted cost estimates in returns to a questionnaire sent out by the Treasury Division, AAR. While making the survey, the division's committee on banks got the impression that "pressure has been exerted upon most railroads to incur whatever expense is required."



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Eight Months' Net Off \$234 Million

It was \$337 million compared with \$571 million last year— Net railway operating income was off \$245 million

Class I railroads, in the first eight months of this year, had an estimated net income after interest and rentals, of \$337,000,000, according to the Bureau of Railway Economics of the Association of American Railroads. This compared with a net income of \$571,000,000 in the first eight months of 1953.

Net railway operating income, before interest and rentals, was \$500,409,102 for this year's first eight months. The comparable figure for the first eight months of last year was a net of \$744,877,972.

For August, the estimated results showed net income of \$64,000,000, down \$17,000,000 from the \$81,000,000 reported for August 1953. Net railway operating income for the 1954 month was \$84,072,973, compared with \$101,631,615 for August 1953.

In the 12 months ended August 31, the rate of return averaged 3.25%, compared with 4.61% for the 12 months ended August 31, 1953.

Gross in the first eight months amounted to \$6,193,871,103 compared with \$7,177,986,817 in the same period of 1953, a decrease of 13.7%. Operating expenses amounted to \$4,939,611,628 compared with \$5,413,836,296, a decrease of 8.8%.

Thirty-three Class I roads failed to earn interest and rentals in the first eight months; 17 were in the Eastern district, five in the Southern region, and 11 in the Western district.

Mo	mth of August	
200.00	1954	1953
Total operating revenues	\$ 804,767,423	\$ 924,764,851
Total operating expenses Operating ratio	623,326,478	689,481,169
-per cent .	77.45	74.56
Taxes	74,494,483	112,214,155
Net railway opera (Earnings be-		
fore charges)	84,072,973	101,631,615
Net income, after	charges	
(estimated) , ,	64,000,000	81,000,000

(estimated) ,,	64,000,000	81,000,000
Eight Mo	nths Ended Aug	ust 31
Total operating revenues	6,193,871,103	7,177,986,817
Total operating expenses Operating ratio	4,939,611,628	5,413,836,296
-per cent .	79.75	75.42 862.092,653
Net railway opera (Earnings be-	583,988,932 uting income	862,092,633
fore charges)	500,409,102	744,877,972
Net income, after	337.000.000	571,000,000

Freight Car Loadings

Loadings of revenue freight in the week ended October 2 totaled 721,883 cars, the Association of American Railroads announced on October 7. This was an increase of 11,668 cars, or 1.6%, compared with the previous week; a decrease of 90,651 cars, or 11.2%, compared with the corresponding week last year; and a decrease of 130,037 cars, or 15.3%, compared with the

equivalent week during the year 1952.

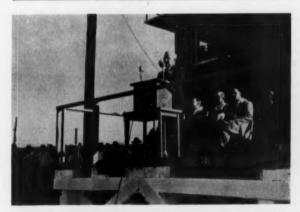
Loadings of revenue freight for the week ended September 25 totaled 710,-215 cars; the summary, compiled by the Car Service Division, AAR, follows:

For the week er			
District	1954	1953	1952
Eastern	111,827	137,427	140,967
Allegheny	124,355	159,023	168,855
Pocahontas	50,370	59,466	63,616
Southern	123,887	128,020	134,137
Central Western		140,473	
Southwestern	126,162 59,348	130,702 64,598	135,434 67,916
Total Western	-	-	
Districts	299,776	335,773	354,490
Total All Roads	710,215	819,709	862,065
Commodities:			
Grain and grain	70 ats		TT
products	50,551	52,832	50,778
Livestock	122,174	12,705	13,220
Coal	7.980	12,539	14,366
Coke	45,562	45,891	44,107
Ore	53,779	85,964	98,002
Merchandise I.c.I.	64,892	70,682	76,305
Miscellaneous	352,369	398,427	414,425
September 25	710,215	819,709	862,065
September 18	711,228	823,883	873,596
September 11	601,525	710,554	881,291
September 4	688,492	799,080	746,882
August 28	676,616	818,461	727,360

Cumulative total, 39 weeks ...25,031,172 29,066,430 28,017,896

In Canada—Carloadings for the seven-day period ended September 21 totaled 77,455 cars, compared with 79,-884 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

Totals for Canada:	Revenue Cars Loaded	Total Cars Rec'd from Connections
September 21, 1954	 77,455	26,751
September 21, 1953	 84,950	31,423
Cumulative Totals:		
September 21, 1954	 2,615,788	1,029,564
	2,885,255	1,193,793





L&N-NC&S+L DEDICATE RADNOR YARD

Radnor yard, new \$15-million joint facility of the Louisville & Nashville and the Nashville, Chattanooga & St. Louis, near Nashville, Tenn., was formerly dedicated September 22 (Railway Age, October 4, page 13). John E. Tilford,

president of the L&N, presided at the dedication ceremonies (left), while special guests present at the program included shippers, industrialists and financial analysts (right).

C&O STOREKEEPER WINS RAILWAY AGE CONTEST

John D. McGann, Chesapeake & Ohio storekeeper at Hinton, W. Va., has won the \$100 prize for an essay he submitted in a contest sponsored by Railway Age. Mr. McGann's prizewinning essay, a discussion of the railroad need for inventory reduction. will appear in an early issue of Railway

The panel of judges which awarded the prize to Mr. McGann consisted of V. N. Dawson, assistant purchasing agent, Baltimore & Ohio; F. W. Pettit, general purchasing agent, Western Maryland; and H. M. Rainie, vicepresident, Boston & Maine.

Labor & Wages

New Demands, New Chief For Carmen's Group

Convening at Long Beach, Cal., recently, the 185,000-member Brotherhood of Railway Carmen of America elected a new president and formulated resolutions hinting at new demands on the carriers.

The new president is A. J. Bernhardt, assistant president since 1946. He succeeds Irvin Barney, who chose not to run for reelection. Charles W Burch, vice-president, succeeds Mr Bernhardt as assistant president.

The approximately 1,100 delegates went on record as favoring a number of benefits and changes, including:

· Thirty days of sick leave annually with pay;

· Severance pay for railroad employees whose jobs are abolished in force reductions;

· Another drive for "uniform" pass privileges on all U. S. roads:

• Faster negotiation procedures and retroactivity of wage increases:

· Time-and-one-half pay for Saturday work, premium rates for night work, and double-time pay for work performed on holidays;

· A joint move with other unions to secure a 35-hr work week without reduction in present 40-hr take-home pay: and

• Full equalization of pay rates between freight and passenger carmen.

The union also condemned the Post Office department's program of diverting first class mail to airlines on a space-available basis. It questioned the legality of the move by saying that "there is grave doubt that existing federal statutes permit expenditure of tax funds for air transportation of three-cent mail comparable with that accorded six-cent mail," and suggested discontinuance of the practice pending congressional investigation of both its legality and cost.

Education

Editors Consider "How To Improve Magazines"

"The price of admission to any meeting like this ought to be a minimum of five specific suggestions on how to improve our company magazines," Alfred E. Greco, assistant to vice-president, traffic, of the Pullman Company, told the American Railway Magazine Editors Association in winding up the last of many panel discussions which occupied the association's September 29-October 1 convention in Montreal.

Mr. Greco spoke as a member of panel on "Targets for Tomorrow— ARMEA's Goals for the Future," on which other speakers were J. L. James. Louisville & Nashville; R. F. Read. St. Louis-San Francisco: Steve Canton, Railway Express Agency; I. K. Shuman, Pennsylvania; and Lee Sher-wood, Western Pacific. Their subject -improvement of employee publica-tions in particular, and of employee and public relations in general-was the central theme which ran throughout the entire meeting, and was the major subject of all other panels on the program.

Those panels, and speakers participating in them, were:

"Operation Spotlight-Three Management Projects and How They Grew Virginia Tanner, Baltimore & Ohio: Emmett Fitzpatrick. Southern Pacific: and John L. Stover, Southern.
"On the Outside Looking In; Ob-

servations on the Railroad Story, Past, Present and Future" - Gordon Huffines, Federation for Railway Progress: Gardner C. Hudson, Railway Age; and Frank Richter, Modern Railroads

"Well-They're Every Bit as Wide: Editorial Problems and Advantages on Long and Short Roads"—T. J. Zirbes. Rock Island, and John Green. Ir., Reading.

"Dear Mr. Anthony; Advice, Kinds, for Perplexed Editors"-Clifford G. Massoth, Illinois Central; Edgar J. Hartney, Litchfield & Madison: Ruby P. Garrison, Gulf, Mobile & Ohio; and Hugh Lee Fitts, Missouri Pacific.

"The Nursery; Starting a New Employee Publication"-George W. Eastland, Lackawanna; and Kenneth S. Ludden, Bangor & Aroostook.

Formal addresses were delivered by Clifford A. Somerville, of the Boston & Maine, president of the association and presiding officer at the convention, on "Year of Decision"; by Herber: B. Brand, director of the Railway Mail Transportation Division

of the Association of American Railroads, on "Recent Developments in Mail Transportation"; by C. H. Heasley, of the Savings Bond division of the U. S. Treasury Department, on "Telling the Savings Bond Story"; and by R. Gordon Robertson, Deputy Minister for Northern Affairs and National Resources and Commissioner of Northwest Territories of the Dominion of Canada, who spoke on recent economic developments in Canada.

Program chairman for the convention was George McCann, of the Chesapeake & Ohio, while H. Travers Coleman, of the Canadian Pacific, headed the arrangmeents committee.

New Officers-William B. Grumley, of the Nickel Plate, was elected president of ARMEA, to succeed Mr. Somerville; John Green, of the Reading, was advanced from second vicepresident to first vice-president, and T. J. Zirbes, of the Rock Island, was chosen second vice-president. George McCallum, Maine Central, and Harry F. Tate, Jr., Katy, were reelected secretary and treasurer, respectively. The new executive committee, in addition to the foregoing officers and Mr. Somerville, includes Mr. McCann: Melvin L. Shepherd, Santa Fe; and Robert H. West. Nashville, Chattanooga & St. Louis.

Organizations

Short Line Group Meets In New York, October 19-20

The 41st annual meeting of the

The 41st annual meeting of the American Short Line Railroad Association will be held in the Hotel New Yorker, New York, October 19-20.

Among those scheduled to address the meeting are Francis A. O'Neill, Jr., and Leverett Edwards, respectively, chairman and a member of the National Mediation Board. Other addresses will be given by Charles W. Taylor, acting director, Bureau of Safety and Service, Interstate Com-merce Commission; Philip A. Hollar, vice-president, Association of American Railroads; and Harold F. Hammond. manager, Transportation and Com-munication Department, U. S. Chamber of Commerce.

K. L. Moriarty, vice-president in charge of operation, Denver & Rio Grande Western, will be guest speaker at the railroad section of the National Safety Council's 42nd annual congress and exposition. As in the past, the section's meetings will be held on three successive afternoons to permit the membership to attend general sessions of the congress during the morning. All sessions will be held in the Mural room of the Morrison hotel. Chicago. Mr. Moriarty will address the October 19 opening session.

CONDUCTORS WARNED ON PROPOSED PULLMAN STRIKE

The National Mediation Board has warned the Order of Railway Conductors and Brakemen that the union's proposed "progressive" strike against the Pullman Company is ". . . contrary to the provisions of the Railway Labor Act," since the board has not closed mediation of the wage case and retains jurisdiction.

This message was in the form of a telegram to A. G. Wise, executive vice-president of the union and general chairman for the Pullman System, sent late on October 5.

The union had announced a "progressive" strike to begin at two Chicago passenger terminals and the Los Angeles Union station and to spread elsewhere on a pre-determined schedule if the union's demands for wage increases and vacation rules changes were not met.

A key issue in the controversy is an effort by the union to make the increases sought (principally, though not entirely the so-called "trainman package") retroactive to December 1953 instead of to the date on which they were served in June of this year.

The 18th annual meeting of the National Association of Shippers Advisory Boards will be held in the Brown Hotel, Louisville, October 12-14. Principal speaker will be William T. Faricy, president of the Association of American Railroads, who will address the October 14 luncheon session. Other AAR officers scheduled to address the three-day meeting are Richard G. May, vice-president, Operations and Maintenance department; Arthur H. Gass, chairman, Car Service division; and G. H. Hill, director, less-carload shipping research program.

Operations

ICC Reports on Inquiry Into "Chief" Derailment

The Interstate Commerce Commission has found that a broken equalizer on a car truck caused the derailment of the Atchison, Topeka & Santa Fe's "Chief" at Lomax, Ill., on August 22 (Railway Age, August 30, page 8).

Thus the commission's report (No. 3586), by Commissioner Clarke, confirmed the finding announced by the Santa Fe after its preliminary investigation of the accident, which resulted in the death of four passengers, and the injury of 41 passengers, one railway mail clerk, and seven dining-car employees.

The "Chief," westbound No. 19 from Chicago to Los Angeles, was traveling 89 mph (the speed limit being 90 mph) when it left the rails at the turnout of a facing-point crossover. The train consisted of a four-unit dieselelectric locomotive and 13 cars—all of "lightweight steel" construction except the second, that being the car on which the equalizer failed.

Car Recently Overhauled—That car was a club-baggage car of "conventional all-steel" construction. It was 27 years old. but it had received general overhauling at the Santa Fe's Topeka shops during the first three months of this year.

At that time, the equalizers were removed and a magnetic particle test was made. It indicated no defective condition. On the day of the accident, the train was inspected before it left Chicago, 219 miles east of the derailment point; and "no defective condition was observed."

The commission's report disclosed that the conductor heard ballast striking the bottom of the second car as the train approached Lomax, and that he "started toward the conductor's valve at the rear of the car." The derailment occurred before he reached the valve.

How It Happened—The commission's conclusion as to how it happened was set out in the report as follows:

"Examination of the equipment after the accident disclosed that the rear equalizer on the south side of the rear six-wheel truck of the second car was broken behind the middle journal box location. After this break occurred, the front end of the equalizer dropped downward and became wedged against the side of the journal box.

"The marks on the track structure indicate that the bottom of the equalizer was approximately level with the tops of the rails throughout a distance of 6.79 miles east of the point of derailment, and that when the train passed the east switch of the facing-point crossover the front end of the equalizer had worked downward sufficiently to permit the inside surface near the bottom of the equalizer to engage the outside of the head of the south rail of the crossover. When this occurred, the front wheels of this truck became derailed to one side of the rails and the rear wheels to the opposite side."

Struck Cars on Siding—Damage to the crossover's west switch and to the switch of an adjacent siding were found to have caused the general derailment. All of the "Chief's" 13 cars left the rails, and they grazed a string of refrigerator cars which were on the siding. Fourteen of the cars on the siding were derailed or off center. Most of the casualties occurred in the "Chief's" third car, which "turned end for end" after striking the cars on the siding.

The trucks of the car on which the equalizer failed were of the inside swing-hanger drop-equalizer type. The journals were equipped with roller bearings and the spring arrangement consisted of elliptical bolster strings and one helical spring seated upon each equalizer. The car's brake equipment was of the UC clasp type.

Defect Hidden-The failure of



TRANSPORTATION EXECUTIVES—members and guests of the Birmingham, Ala., Traffic and Transportation Club—recently toured the Infanty Center at Fort Benning, Ga. At the left Brig. Gen. Louis W. Truman (center), deputy Third Army commander, greets W. E. Dillard (left), presi-



dent of the Central of Georgia, and J. B. Norman, the CofG's assistant freight traffic manager. Enjoying army "chow" (right), are, left to right: A. V. Simons, of the Southern; R. J. Colquitt, of the Florida East Coast; and Jimmy Daniels and I. H. McGardy, Jr., of the ACL.

HUGE HIGHWAY TRAILER POOL BEGINS OPERATION NOV. 1

A \$9-million pool of highway trailers, established at St. Paul by a group of midwestern motor carriers, will begin operation of its lease-interchange system November 1.

Known as National Trailer Pool, Inc., the organization was set up by a dozen founding companies, but its future operations are not limited to

Shortly after the pool was formed, it placed an order for 500 new trailer units which, along with some 2,000 trailers now owned by founding companies, will constitute the operating equipment fleet.

There will be four classifications of participants in the pool. They are:

(1) Carriers who turn in their trailers for stock in the pool corporation, lease their trailers from the pool, and will share in whatever profit the pool may make;

(2) Carriers who interchange with stockholder members on a "trailer receipt" basis;

(3) Carriers who accept trailers from the above types of members on a single trip contract; and

(4) Other users of trailers who want to lease equipment for local purposes.

Purpose of the pool is to cut idle trailer time and reduce carrier overhead. Details of the operating organization are currently being worked out, and a system of centralized maintenance is being considered. Initially, however, most of the equipment will remain on the property of its present owners, and be subject to call by other carriers as needed.

the equalizer occurred 4½ inches from the front end, at a point just behind the fillet of the foot section over the journal box. The appearance of the metal at the break indicated to commission investigators that "a progressive fracture had existed for some time." A secondary fracture "showed evidence of rapid development." The old fracture "was in a location in

which it could not be detected by routine inspection," the commission report added.

It went on to say that the nature of the origin of the old fracture could not be determined. It also said that laboratory analysis disclosed that the chemical content of the metal met the requirements of Santa Fe specifications

with existing regulations, we will continue to issue trip passes and half-rate transportation to employees of other railroads for certain purposes such as their vacation travel, and we will continue to ask for such transportation for our own em-

Will "Tighten Up"—The New York, New Haven & Hartford had not, up to press time for this issue, released any details of its 1955 pass policy, but a spokesman for that road told Railway Age that it also would "tighten up on foreign passes."

Royster Calls for Systematic Consolidation

"Systematic consolidation" may be the solution to the "weak-and-strong road problem," according to Paul F. Royster, assistant to the undersecretary of commerce for transportation.

The railroads, Mr. Royster told a joint meeting of the Atlantic States Shippers Advisory Board and the Rochester, N.Y., Transportation Club on September 30, are "best qualified to determine the most efficient method of realining operating patterns through consolidation," and "should retain the initiative for proposing unifications."

Mr. Royster also declared that a law is needed to insvre quicker approval of general rate increases. De-

PRR to Curtail Passes in '55

Will not exchange them or reduced rate orders for employees traveling on business, but will continue arrangements for private travel of railroaders

President J. M. Symes of the Pennsylvania has advised officers of other railroads that his road will not, in 1955, exchange annual or term passes nor issue trip passes or half-rate orders for use by railroad men traveling on their companies' business.

As to passes and other concessions for railroad employees on vacations or other personal trips, the tRR will contine its present exchange arrangements. Mr. Symes' notice, dated October 1, reads as follows:

"In order to improve our results from passenger operations, we have concluded that it is necessary to greatly reduce the amount of free transportation which we furnish to officers and employees of other railroads and transportation companies.

"For the year 1955, therefore, we will not exchange annual or term passes nor issue trip passes or half-rate orders for business purposes. We are requesting all employees and dependents on the Pennsylvania Railroad holding passes good for the year 1955 to return them to you through our pass bureau for cancellation, and we suggest that you refrain from issuing any passes not requested.

"Therefore, except where contractual or corporate relationships exist, we will not issue any anual, term or trip passes nor half-rate orders for company business to officers and employees of other railroads or transportation companies. Our employees traveling on other railroads or transportation companies on business trips will purchase regular passenger transportation. In accordance with present regulations and practices, we shall continue to issue trip passes and half-rate orders to officers and employees of other railroads and transportation companies for annual vacation or other personal uses, and request similar trip passes and half-rate orders for our officers and employees.

"It will be appreciated if your people will be governed accordingly."

In answer to an inquiry from Railway Age concerning the purpose and effect of the new policy, Mr. Symes said:

"Yes, we are putting restrictions on the amount of free transportation for business travel which the Pennsylvania provides for officers and employees of other railroads. Operating, as we do, with such a large proportion of railroad passenger service, our position with other railroads does not justify the unlimited exchange of free transportation. This does not mean that we are eliminating exchange of free transportation altogether. In accordance



THE SHAPE of this crossing sign is the obvious reason for its unusual wording—"Stop Listen Look" in place of the regular "Stop Look and Listen." What makes it interesting is that a Railway Age editor found it in the very heart of the Pennsylvania Dutc' country—where "reverse English" expressions have become a part of American folklore.

lays now encountered, despite improved techniques at the Interstate Commerce Commission, he said, are "especially heavy on the railroad industry."

The shippers' board voted to "give its full support" to the program of the National Small Shipments Traffic Conference to encourage use of rail facilities for LCL shipments (Railway Age, October 4, page 8); and to adopt for use in its own territory the Consignee's Carload Damage Report Form. Thus, this form has now been accepted by all of the regional shippers' boards.

NP Adds Second Piggyback Operation

The Northern Pacific has expanded its piggyback operations to include service between the Twin Cities and Duluth. The new service is to be operated every night in both directions, with late evening departures and early morning arrivals.

As in the road's initial trailer-on-flatcar operation between the Twin Cities and the Fargo, N. D.-Moorhead, Minn., area, traffic is accommodated in railroad owned trailers and moves under railroad tariffs. (*Railway Age*, September 13, page 39, and September 6, page 14).

People in the News

Hall Takes Oath For ICC Position

John A. Hall, former special assistant to the grand chief engineer of the Brotherhood of Locomotive Engineers, was sworn in October 5 as director of locomotive inspection, Interstate Com-

merce Commission. He succeeds Charles H. Grossman who returned to his old post of district inspector for the bureau at Albuquerque, N. M., in August. James E. Friend has been in charge of the Washington office since August (Railway Age, August 16, page 9).

Financial

Nashville, Chattanooga & St. Louis.—Trackage Rights.—This road has applied for trackage rights over 5.3 miles of the Louisville & Nashville to facilitate use of the new, jointly operated Radnor freight yard at Nashville. It would save the NC&St.L the cost of building its own track connections and would enable it to abandon, except for limited local use, its Kayne Avenue yard. Compensation to the L&N would be in the apportioning of rental and taxes.

Southern San Luis Valley.—Acquisition. — To issue 5,000 shares of no par voting stock each to George M. Oringdulph, president, W. W. McClintock, secretary, and John Stribling, in return for \$5,000 cash each; to issue a promissory note payable to Bankers Life & Casualty Co. of Chicago for \$135,000 at 6% to mature April 27, 1969 and secured by mortgage; and to issue a promissory note payable to Mr. Oringdulph, Mr. McClintock and Mr. Stribling for \$25,000 at 5% and payable in 10 years. The proceeds would be used to acquire the properties of the San Luis Valley Southern whose entire 31.5-mile line from Jarosa, Colo., to Blanca was abandoned in 1953.

Spartanburg Terminal.—Stock Issue.—This company has asked the ICC for authority to issue and sell 1,000 shares of no par stock to the Atlantic Coast Line, Louisville & Nashville and Charleston & Western Carolina. These three roads would acquire control of the terminal company which also seeks to issue notes, serial debentures and other instruments to evidence loans totaling \$1,000,000 which it plans to obtain to construct a tunnel connecting the lines of the Clinchfield and the C&WC at Spartanburg, S. C. The ACL, L&N and C&WC propose to assume liability as guarantors for the stock and securities to be issued.

Investment Publications

[The curveys listed herein are for the most part prepared by financial houses for the information of their customers. Knowing that many such surveys contain valuable information, Rathewy Age lists them as a service to its readers, but assumes no responsibility for facts or opinions which they may contain bearing upon the attractiveness of specific securities.]

L. F. Rothschild & Co., 120 Broadway, New York 5.

Railroad Income Bonds. Research Report, September 17.

Smith, Barney & Co., 14 Wall st., New York 5.

Denver & Rio Grande Western Railroad Company. Railroad Bulletin No. 172, August 17.

Missouri Pacific Railroad Company. First & Refunding 5s, 1965, 1977, 1978, 1980, 1981. Railroad Bulletin No. 171, August 16.

Missouri Pacific Railroad Company. International-Great Northern Railroad Company, New Orleans, Texas & Mexico Railway Company. Trustee's Compromise Plan of Reorganization. Railroad Bulletin Nos. 170, July 21, and No. 173, August 17.

Vilas & Hickey, 49 Wall st., New York 5.

Missouri Pacific Agreed Plan. August 2.

Texas & Pacific Railway (a strongly situated minority common stock). August 23.



C. B. PECK (left), was succeeded by HAROLD C. WILCOX (right), on October 1 as editor of Railseay Locomotives & Cars, monthly affiliate of Railseay Age. Mr. Peck, who became managing editor of Railseay Locomo-



tives & Cars in 1923, and editor in 1948, will, as consulting editor, undertake analytical articles and editorials. Mr. Wilcox had been managing editor of Railway Locomotives & Cars since

Supply Trade

E-M Plant 3 to Make Grading Machinery

Effective October 1, the Electro-Motive diesel switcher Plant 3, in Cleveland was transferred to the Euclid division of General Motors Corporation, and will be used for manufacture of a new product in the earth-moving field. This additional 480,000 sq ft of floor space will more than double Euclid's facilities for construction, among other things, of the experimental Model TC-12 twin crawler tractor which was previewed recently at the GM proving ground, Milford, Mich.

Production of diesel locomotive components will be continued at Plant 3, tapering off as output of the new Euclid product increases. Major locomotive building activities will continue to be carried on at Electro-Motive's main Plant 1 in La Grange, Ill., and Plant 2 in Chicago.

Electronic Retarder Control

An application of electronics to provide automatic control of moving cars in freight car classification yards has been announced by the Union Switch & Signal Division of Westinghouse Air Brake Company. This equipment will, it is claimed, virtually eliminate impact damage resulting from human error.

The electronic equipment weighs each car, determines its overall rolling characteristics, and continually measures its speed. This and other information is fed to an electronic brain, which instantly calculates the braking effort required to retard the car for proper coupling speed and establishes the desired control of the car retarder.

This application of electronics can be included in new projects or added to existing installations. For example, a railroad can first install retarders and power switches, and then add retarder speed control or automatic switching, or both.

Furthermore, the routing of an entire train of cars can be handled automatically by the adaptation of a recorded classification list to automatic switching. This entire system would make freight car classification almost completely automatic, thus eliminating human error and consequently greatly reducing damage to lading.

The Air Brake division of Westinghouse Air Brake Company has announced the following appointments: R. B. Morris and Kenneth Chrissinger, representatives in the New York office; C. J. Storch, Eastern district engineer, New York office; J. G. Reese, renewal parts sales manager in the Wilmerding. Pa., home office; W. W. Wagner, representative in the Chicago office; D. J. Blaine, district engineer at Chicago; J. A. Campbell, representative in the San Francisco office; and P. E. Fegley, district engineer in the San Francisco office

Raymond N. Carlen has been appointed assistant to vice-president in charge of operations of Joseph T. Rverson & Son.

A. B. Drastrup, executive vicepresident of A. M. Byers Company since last February, has been elected president to succeed L. F. Rains, who retired October 1 after 23 years as president and a director.

F. A. Henry, formerly assistant to the Milwaukee general manager of A. O. Smith Corporation, has been appointed general manager of the firm's Pacific Coast works at Los Angeles. Mr. Henry succeeds A. W. Shuman, resigned.

Henry A. Holberson has been elected vice-president and general manager of the Youngstown Metal Products Company, a subsidiary of the Youngstown Sheet & Tube Co.

H. H. Hippler has been appointed assistant director of sales and service administration for Gar Wood Industries.

Keith Hall has been named manager of sales to the transportation industry for the Reynolds Metals Company. For the past eight years Mr. Hall has been in the firm's Washington, D.C., sales office as manager of federal sales.

Abner G. Budelman has been appointed to the newly formed post of manager of spare parts sales for the the Mobile Communications department of Allen B. Du Mont Laboratories.

The John B. Moore Corporation has appointed several technical service and sales representatives, as follows: Charles C. Searles, northern Illinois; Charles H. Cadiz, Delaware, Maryland, District of Columbia and Virginia; William I. Lightfoot, Kentucky and Tennessee; and Industrial Equipment Company, Kansas City, for the five-state central west area.

Securities

Authorization

WESTERN MARYLAND.—To issue \$16,000,000 of first mortgage bonds, series C, proceeds from which are to be used to redeem \$12,032,000 at 1931 issue and to reimburse the read's treasury, in part, for capital expenditures (Railway Age, August 30, page 10). Division 4 approved sale of the bonds at 99.1, based on on interest rate of 31/2%—the bid of Morgan Stanley & Co. and 12 associates—which will make the annual cost of the proceeds to the road approximately 3.56%.

Applications

BANGOR & AROOSTOOK.—To issue \$2,850,000 of equipment trust certificates to finance, in part, purchase of 330 steel refrigerator cars, to be built by Pacific Car & Foundry Co. at an estimated unit cost of \$10,500 and an estimated total cost of \$3,675,000. The securities, to be dated November 1, 1954, would mature in 15 annual installments of \$190,000 each. They would be sold by competitive bids, with interest to be determined by such bids.

SPRINGFIELD TERMINAL.—To issue 1,000 shares of previously authorized \$100-par common stack as a dividend to the Boston & Maine, sole owner of all the \$7's capital stack.

Dividends Declared

ATCHISON, TOPEKA & SANTA FE. - \$1.25 quarterly, payable December 8 to holders of record October 29.

ELMIRA & WILLIAMSPORT.—\$1.19, semiannual, payable November 1 to holders of record October 20.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.

-25¢, payable October 21 to holders of record
October 7.

NORFOLK & WESTERN.—4% adjustment preferred, 25¢, quarterly, payable November 10 to holders of record October 21.

RICHMOND, FREDERICKSBURG & POTOMAC.— 6% guaranteed (extra), 75¢; 7% guaranteed (extra), 50¢; both paid October 1 to halders of record September 20.

Security Price Averages

		Oct.	Prev. Week	Last
erage price of 20 sentative railway	stocks	70.88	70.49	56.88
erage price of 20 sentative railway		96.14	96.41	89.95

Railway Officers

BELT RAILWAY COMPANY OF CHICAGO and CHICAGO & WESTERN INDIANA.—Joseph R. Barse, vice-president and general counsel at Chicago, retired October 1. Named to succeed Mr. Barse as general counsel is Franklin C. Gagen, general solicitor at that point. F. J. Wasson, general traffic and industrial manager there, has been elected vice-president—traffic and will also continue to mange general traffic and industrial matters.

Arthur B. Hillman, Jr. has been appointed engineer maintenance of way at Chicago, succeeding G. G. Amory, who has retired.

CANADIAN PACIFIC. — W. F. Koehn, general superintendent of the Ontario district, at Toronto, Ont., has been named general superintendent of the Algoma district at North Bay, Ont., succeeding F. M. Donegan, who has retired after 47 years of railroading. J. W. Harman, superintendent of Toronto terminals, succeeds Mr. Koehn as general superintendent of the Ontario district.

H. G. Bonner, assistant local treasurer at Winnipeg, has been promoted to local treasurer there, succeeding Charles E. Dey, who retired on pension September 30, after 49 years of service, all at Winnipeg. Robert Collier, chief clerk, succeeds Mr. Bonner as assistant local treasurer.

D. N. MacLeod, superintendent of communications, Toronto, has been named general superintendent of communications, Western lines, at Winnipeg. succeeding P. G. McLean, who retired September 30 after more than 45 years of service. H. W. Howard, superintendent of communications, Algoma district, at Sudbury, Ont., has been transferred to the Quebec district at Montreal, succeeding A. E. Emery. who has been transferred to the Ontario district. E. J. Awishus, superintendent of traffic communications at Montreal, replaces Mr. Howard at Sudbury

G. W. Scholes, chief clerk to the general manager. communications, at



THIS EFFICIENT NEW OFFICE BUILDING, converted from what was once a shop, now houses all Rutland head-quarters offices at Rutland, Vt. By consolidating under one

roof offices which were formerly scattered throughout the city, the road expects to save money on rent while gaining greater efficiency in operation.

Montreal, has been named assistant to general superintendent of communications, Eastern lines, Montreal,

FLORIDA EAST COAST—C. D. Lane, Jr., assistant to comptroller of the Seaboard Air Line at Portsmouth, Va., has been appointed chief accounting officer of the FEC at St. Augustine, Fla., succeeding C. E. Coomes, who has retired after more than 37 years of service.

LACKAWANNA.—C. M. Segraves has been named engineer of structures at Hoboken, N.J., succeeding John Leonard Vogel, who retired last March and died August 23.

MARYLAND & PENNSYL-VANIA.—Miss Leila W. Davison, treasurer, assistant secretary and auditor at Baltimore, retired August 31, after more than 34 years of service. A. M. Bastress, traffic manager, has been elected treasurer and J. N. Frantz, Jr., has been named auditor, assistant treasurer and assistant secre-

NEW YORK CENTRAL.—F. J. Gasparini, assistant to general land and tax agent at New York, has been appointed assistant general land and tax agent there, succeeding J. P. McQuade, who retired September 30, after 45 years of service with the road.

PENNSYLVANIA. — Charles J. Flaherty, superintendent of freight transportation. Western region, Chicago, has been transferred to the Central region at Pittsburgh, succeeding Homer L. Clapper, who has retired after more than 47 years of service. Mr. Flaherty has been succeeded by W. S. Plummer, assistant superintendent, Chicago division, who in turn has been succeeded by G. M. Smith. division engineer, Philadelphia division.

J. R. Dixon, assistant auditor of passenger traffic, has been appointed auditor of passenger traffic, Philadelphia, succeeding the late W. S. Painter (Railway Age August 16).

PULLMAN COMPANY.—Charles D. Boak, assistant general passenger agent, has been advanced to general passenger agent at Chicago, succeeding Howard Lowder, who retired September 1. Mr. Boak's successor is Roy E. Hull, assistant to general passenger agent at Chicago.

ROCK ISLAND.—The headquarters of W. H. Lloyd, stores manager, has been transferred from Chicago to Silvis, Ill. Mr. Lloyd will continue to have jurisdiction over all stores matters. B. J. Boesen has been appointed assistant to general purchasing agent at Chicago. The title of H. W. Berg, fuel agent, has been changed to fuel agent and office manager, purchasing



SOUTHERN PACIFIC-PACIFIC ELECTRIC.—C. R. Murray, assistant to general purchasing agent of the SP at San Francisco, who has been appointed purchasing agent at Los Angeles (Railway Age, August 9, page 16).

department, at Chicago. The position of assistant general storekeeper at Silvis, has been abolished. A. L. Goranson has been assigned to the position of supervisor of scrap and reclamation at Silvis, succeeding R. J. Ehlers, assigned to other duties.

RUTLAND. — Charles J. Reagan has been appointed general agent at Boston, Mass.

Boston, Mass.

J. W. Lovett, trainmaster and general representative at Malone, N. Y., has been transferred to Rutland, Vt.

H. B. West has been appointed supervisor of operations, with jurisdiction over mechanical and transportation department forces, at Malone. E. J. Harrison has been named terminal trainmaster at Rutland.

TEXAS & NEW ORLEANS.—F. P. Bowen has been named executive assistant at Houston.

W. S. Higgins, superintendent of the Victoria division, at Houston, retired September 30.

TEXAS & PACIFIC.—Robert C. Caldwell, formerly southwestern disdistrict manager of Pullman-Standard Car Manufacturing Company, has been named to the newly created position of superintendent of work equipment at Dallas.

OBITUARY

Walter R. Evans, land and tax commissioner of the Frisco at St. Louis, died of a heart attack on September 29 at Kansas City.

Robert E. Keck, general claim agent of the Northern Pacific at St. Paul, died September 30 at Seattle.

Carter H. Lippincott, 62, coal traffic manager of the Pennsylvania at Philadelphia, died September 30 at his home in Wayne, Pa. (More News on page 19)



NATIONAL OIL SEALS help

keep the roll in roller freight

National Oil Seals are vital to the smooth, trouble-free operation railroads enjoy with roller bearing journal boxes. Mounted inside the journal box, these precision seals keep lubricant in—dirt, dust and water out. Uniform sealing is assured under all conditions, even winter blizzards, desert sand storms or immersion of the journal in water.

Like roller bearing journal assemblies themselves, National Oil Seals are rolling in over 85,000 freight car

NATIONAL MOTOR BEARING CO., INC.

General Offices: Redwood City, California. Sales Offices: Chicago, Cleveland, Dallas, Detroit, Downey (Los Angeles County), Milwaukee, Newark, Van Wert, Wichita. Plants: Redwood City, Downey and Long Beach, California; Van Wert, Ohio.

journal boxes; rolling millions of miles without malfunction or replacement. They are playing an important role in the success of roller bearing railway journals—and the elimination of costly hot boxes.



Original equipment on cars, trucks, buses, tractors, railway rolling stock, machinery and appliances.

3136

Car Ownership Declines— Shortages Continue

A review of the events relating to the ordering and building of freight cars from the years immediately preceding World War II up to the present time emphasizes the unsatisfactory results which come from the car-buying psychology of the railroads. Like the occupant of the shack whose roof leaked (when the weather was clear he didn't need to fix it; when it rained he couldn't), unless shortages are sufficiently acute to threaten political interference the railroads get along without more cars; when the need becomes acute, more cars cannot be had in time to do much good.

The relations between freight-car orders, deliveries and loadings from 1939 to the end of 1953 are shown in the graph.* From 1940 on deliveries have never been satisfactory. Before deliveries of the heavy spurt of orders induced by the beginning of the war had got well under way, rationing of materials was in effect and there never were enough cars to meet the needs of the railroads. Shortages began to appear at the end of 1942 and after the end of July 1943 they were continuous. Although steadily mounting, they did not alarmingly interfere with the conduct of the war.

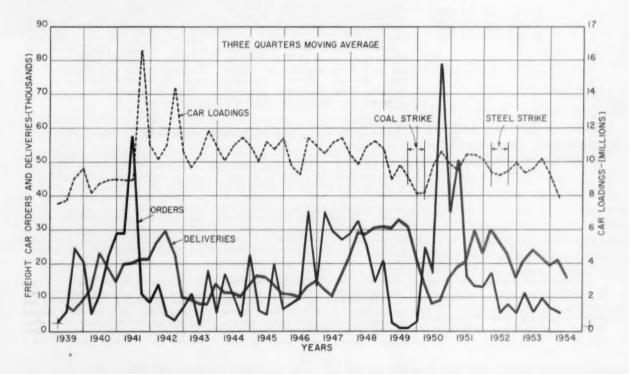
Since then, however, the situation has been an unhappy one. Indeed, after Korean hostilities began, it became the object of political attention, but materials to bring production up to 10,000 a month were never forthcoming.

After 1951 orders dropped to an average of 4,000 a month and, at the end of 1953, practically dried up. Class I ownership declined more than 19,000 cars in the first seven months and the objective of a Class I ownership of 1,850,000 cars by the end of 1954 is unattainable.

It is necessary to keep in mind that during practically the entire period covered by the graph the supply of freight-car materials was artificially restricted. Even when the normal lead time required by the car-building industry is the only restriction on deliveries, however, it is doubtful whether sudden surges of orders can be delivered before the crisis which inspired them has abated.

Despite the reduced carloadings during 1954, car shortages still occur and remain a threat to the future of railway transportation.

^{*}The point for each quarter on the graph is an average of three quarters, from which one quarter is dropped and another added to determine the value of the succeeding point. This smooths out the more violent fluctuations and makes the trend more readily apparent.



Questions and Answers for the transportation DEPARTMENT

On the Santa Fe—How a completely dieselized road does it.

As railroads become fully dieselized, or approach that goal, the utilization of diesel power is receiving increasing attention. In this column, August 2 and 30, and September 27, five roads described some of the methods they use to try to assure best utilization of motive power. This week, we continue with the answer of the Santa Fe. probably the largest of the country's completely dieselized carriers. The first portion of the Santa Fe's reply to our question was carried in the issue of September

27.—G.C.R.

Train movement cards are not used on the Sante Fe. Close supervision is. however, given by operating and me-chanical officers, working closely with each other, so inspections can be made on or before the date due, and necessary running repairs can be handled at regular maintenance points with a minimum out-of-service time.

The Sante Fe was among the first to build and make use of a diesel instruction car, placed in service in 1947. At that time, a definite program was established for educating employees, both road and shop, in maintenance and operation of diesel locomotives. This was handled through instruction given by our shop and road supervisors, apprentice training programs and other methods. Also, we require top supervision to attend builders' educational classes-both the beginners' course of a week's duration and the advanced course of one week. Some 75 to 90 men attend such classes each year.

In addition to the diesel instruction car, which operates 11 months of each year, holding classes at all division points, we have prepared and issued an operating manual to all road men and the majority of shop men. This manual contains information for the education and guidance of employees whose duties require them to be familiar with operation of diesel-electric locomotives and their appurtenances.

Educational work is an endless job in that new employees are constantly replacing those who retire; locomotive builders are developing new types of power; and older units are altered and modernized.

Santa Fe has 20 locomotives geared for maximum speed of 80 mph, which are used interchangeably in freight passenger service. Generally speaking, these locomotives are used to protect extra sections of regular and special passenger trains, but when not so utilized they are available for and used in freight service.

Additionally, we have 35 65-mph freight locomotives and 21 road-switcher type locomotives equipped with steam generators so assigned over the system that they provide emergency protection for passenger trains, and are also available to handle an extraordinarily heavy passenger movement, such as the one involving the Boy Scout Jamboree in California in 1953.

Development of tonnage ratings is a responsibility of the general managermechanical department, whose office prints and distributes tonnage rating sheets to operating department officers -including chief dispatchers-who are held responsible for not overloading the locomotive beyond its rating. system set of tonnage ratings for both freight and passenger locomo-tives, covering all classes of power, over all territories, is maintained in all offices having to do with operation of trains. Tests are constantly being run to establish maximum tonnage can be handled without overloading the motors, and whenever these tests demonstrate that theoretical ratings should be changed, supplemental rating sheets are issued.

Considering our dieselization program as a whole, each diesel locomotive added has replaced between one and one-half and two steam locomotives

In the early stages of dieselization, the ratio was somewhat higher, in that we could pick and choose assignments where extremely high utilization could be obtained for the diesels. By the same token, as we approached and finally realized complete dieselization, the ratio diminished until finally we were replacing the tagends in the ratio of one diesel to one steam engine.

Must mileage be paid on empty tank cars moved for carrier's convenience?

[In our next column we hope to run another quiz on proper loading of cars in accordance with car service rules. Watch for it and send in your answers.-G.C.R.

Yes-if cars are moved outside switching limits.

A tariff allows an owner or lessee of private tank cars to return empty tanks, in any numbers, to loading point, there to be held for prospective loading, on carrier's tracks, free of demurrage until tendered or placed for loading. Occasionally, so many of these empty tanks arrive that carrier is required to move some to other locations or stations for storage to keep

the yard fluid at loading point. Must carrier pay owner mileage when cars are so moved, and if so should it be included in the equalization account?

Mileage must be paid to owner if cars are moved to points outside switching limits of station where held. Such mileage must be included in owner's equalization account. (See Mileage Tariff 7 series, Item 105, Rule 2.)

CONDUCTED BY G. C. RANDALL, district manager, Car Service Division (ret.), Association of American Railroads, this column runs in alternate weekly issues of this paper, and is devoted to authoritative answers to questions on transportation department matters. Questions on subjects concerning other departments

will not be considered, unless they have a direct bearing on transportation functions Readers are invited to submit questions, and, when so inclined, letters agreeing or disagreeing with our answers. Communications should addressed to Question and Answer Editor, Railway Age, 30 Church Street, New York 7.



Intensive studies made by railway authorities show that one-third of the total cost for freight car repairs is attributable to corrosion damage. High resistance to corrosion, eliminating costly maintenance, is one of the many advantages of Commonwealth one-piece cast steel underframes for freight cars.

Since 1927, several hundred gondola cars with Commonwealth cast steel underframes have been in continuous sulphur carrying service and have been exposed to the consequent chemical actions as well as to all types of atmospheric conditions. Periodic inspections of these cars have revealed prac-

> tically no evidence of deterioration in the cast steel underframes. They

have presented no maintenance problems and orders have been duplicated several times.

For flat cars, pulpwood cars, sulphur carrying cars, ore cars, depressed center cars, and others, Commonwealth one-piece underframes with metal distributed to the greatest advantage, provide exceptional strength without increase in weight, and eliminate welded or riveted joints or connections. Thus, in addition to providing increased resistance to corrosion, other maintenance costs are eliminated and maximum availability of equipment is obtained.

For true upkeep economy and long dependable service-life, build your cars with Commonwealth Cast Steel Underframes.



GENERAL STEEL CASTINGS

GRANITE CITY, ILL.

EDDYSTONE, PA.



Now you can list and add without touching a motor bar! 50% less hand travel—a great saving of effort for operators. No wonder they like it!

Amounts are added and printed the instant they are set on the keyboard—because every key is electrified! No more "back and forth" motion from keyboard to motor bar—because every key is also a motor bar. The only completely electrified Adding Machine!

National's "feather-touch" action makes it easier than ever to press combinations of keys at one time—more time-and-effort-saving!

All ciphers print automatically—still more effort and time saved! At the end of the day operators feel fresher—and they have accomplished more with less effort.

The National Adding Machine gives you "Live" Keyboard plus 8 other timesaving features combined only on National: Automatic Clear Signal . . . Subtractions in red . . . Automatic Credit Balance in red . . . Automatic space-up of tape to tear-off line when total prints . . . Large Answer Dials . . . Easy-touch Key action . . . Full-Visible Keyboard . . Rugged-Duty Construction in compact size for desk use.

One hour a day saved with this exclusively National combination of features will repay the entire cost of a National Adding Machine every year—an annual return of 100%.

you can forget the motor bar!

Don't buy any adding machine until you see this National! Printed words cannot explain all the ways this remarkable National saves operator effort, saves time, saves money. You must see it to believe it. For a demonstration phone the nearest National office or National dealer. See it today!



THE NATIONAL CASH REGISTER COMPANY, DAYTON 9 OHIO

Do Buses Get Rails' Traffic?

Branch-line passenger abandonments often have no effect on revenues of parallel bus operations, South Dakota utilities commissioner tells intercity bus chiefs

The extent to which intercity bus lines are competing with passenger carrying railroads edged into the limelight during the recent convention of the National Association of Motor Bus Operators in Chicago. It was one of several aspects of the railroad industry which marked the 25th annual meeting of the bus operators' organization, C. L. Doherty, president of the National Association of Railroad & Utilities Commissioners and a member of the South Dakota Public Utilities Commission, pointed to the stepped-up buying of passenger automobiles and commented, "people certainly do not buy these cars to put them in garages. He went on to say:

"We in the regulatory business have many times been confronted with an application from a bus company for authority to operate a service paralleling a railroad passenger line. Chambers of commerce, various civic clubs and many enthusiastic supporters of the bus companies come forth pleading for the applicant, claiming they don't use the passenger train. The commission invariably grants the authority, and buses are put into operation. Some six to 10 months hence, the railroad people come in with an application to abandon that passenger train. The same good people then reverse themselves, come in and vigorously fight the applicant, claiming they would be greatly discommoded and inconvenienced should the train go. In the interest of economy, conservation of equipment, and record made at the hearing, the train is abandoned.

"Strange as it may seem, in my state, abandonment of trains has not brought about an increase in business for the bus lines. Whether you will admit it or not, I believe your greatest competition is the same as the railroads' competition, that is, the privately-owned automobile. And there isn't too much we can do about it except from a public relations standpoint to keep pointing out bus transportation is cheaper and safer."

Aim of U. S. Study—Explaining the role of the Department of Commerce and President Eisenhower's new Cabinet Committee on Transport Policy and Organization, Robert B. Murray, Jr., undersecretary for transportation, said:

"It is not our purpose to attempt to exercise regulatory control over railroads. Nonetheless, considering the role of the railroads in our national life, it is imperative that the Administration constantly scrutinize federal regulatory policies to determine whether they are retarding railroad progress or interfering with the exercise of what are properly matters of business decision. Railroads must have an opportunity to compete for traffic under modern conditions. Antiquated and unnec-

essary regulation must be removed. We want to find out what changes in federal policy towards or affecting the railroads appear desirable.

"The railroads must also bestir themselves, I hasten to add. Placing additional restrictions upon competing types of transport is not the answer to their increasing ly competitive problem. It is, moreover, out of character with the administration's view and effort to remove unnecessary and harassing government regulations or influence."

New Coaches—In a nearby parking lot, bus manufacturers exhibited the largest collection of completely new intercity coaches seen in many years. Bi-level designs—the bus industry's "new look"—were much in evidence, although one eye-catching model was of a single, but high-level, design. Called the "Golden Chariot," it seats 47 passengers, offers lavatory facilities and is finished on the outside in gold-

"STANDARD" **CABOOSE FOR MONON** Built by "Special" cars for industrial requirements TERRELL are standard procedure here at Thrall. At the same time, "Standard" cars for inter-Where the "Special" is change service benefit from special custom shop construction at interesting prices. Standard and The How can we offer an attractive proposition "Standard" is Special on both? Flexible production facilities, plus 38 years of developing them, pretty well sum it un. Write for our booklet "Cost-cutting Customs on 'Customs'." It shows what Thrall can do for you on Special or Standard cars, reconditioned or leased cars. CAR MANUFACTURING COMPANY 2602 Wallace St., Chicago Heights, Illinois Caboose Car, all steel constructed, fireproof through out. 80,000 lb. capacity. Cabooses are designed to meet railroad's individual requirements.



The machine picks up ballast from the intertrack space and deposits it on the track for most effective tamping.

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Ballast in the proper quantity . . .

... is placed by this machine exactly where it is needed for most effective tie tamping—both inside and outside of the rail. The McWilliams Ballast Distributor eliminates the need for 30 to 40 men forking ballast ahead of the tamping operation and dressing ballast behind it. Both the amount of ballast picked up and the amount distributed are controlled by the operator. At all times the track ahead is open for renewing and spacing ties. Write for bulletin.



tone anodized aluminum. The glamour of the new coaches was of more than casual interest to the conventioning operators, for the intercity bus industry has experienced a 12% decline in traffic during the first half of this year. A. W. Koehler, secretary-manager of the association, saw some slackening in this downward pace, but expressed concern over "expanding air coach travel" as well as the private automobile.

Law & Regulation

New Mexico Chases Rail "Ambulance Chasers"

New Mexico has gone out after "ambulance chasers"—those who solicit personal injury lawsuit cases from injured railroad employees and others, for an attorney who will then handle the case in another state. A consent decree recently signed by District Judge C. Roy Anderson at Carlsbad presaged favorable outcome of the drive in a test suit filed at Clovis.

Identified as "State of New Mexico vs. H. W. Lawson, Norman Fenn, C. A. Randolph, and Atchison, Topeka & Santa Fe Railway Company," the case is expected to halt the practices of soliciting personal injury lawsuits against New Mexico railroads and alleged fee splitting with out-of-state

attorneys.

The state charged Mr. Fenn with soliciting damage suits in and around Clovis since January 1945 as an agent for Mr. Randolph, a Kansas City attorney. Mr. Fenn, the state said, is not an attorney and is not licensed to practice law in New Mexico. He also was charged with agreeing to pay expenses, support and maintenance of injured rail employees while their cases were pending. The state charged that he then became an employee of the claimant, investigating the case and preparing it for trial, and receiving, for this, one-third of the fee charged by the attorney. This, the state claims, is simply a subterfuge to evade provisions of the state law prohibiting division of attorney's fees between lawyers and laymen,

The immediate court action stemmed from a damage suit filed in a Kansas City court by Attorney Randolph on behalf of H. W. Lawson, of Clovis, a Santa Fe employee alleged to have sustained a back injury while on duty. Judge Anderson's decree prevents the Santa Fe from making a settlement with the employee through Randolph or Fenn, but does not preclude a

direct settlement.

In a cross-claim, the Santa Fe revealed that some 35 cases had been filed by Randolph in the circuit court of Jackson county, Mo., during the

past nine years. All were against the Santa Fe on behalf of employees who were New Mexico residents. The railroad joined with the state in seeking injunctions against the team who, although they denied the allegations, consented to entry of the decree which stopped their participation in the Lawson case and prohibits further solicitation activities in New Mexico by Fenn.

Labor's Help Sought to Speed Legislative Reforms

Labor-management cooperation can bring about regulatory changes "at both national and state levels" that would give railroads "freedom to compete" on an equal basis with other forms of transportation, J. Carroll Bateman, assistant chairman of the Eastern Railroad Presidents Conference, said in Boston recently.

Mr. Bateman, addressing the annual meeting of the New England Association of the Brotherhood of Locomotive Engineers, emphasized that the railroad industry's fight for legislative reforms is, to a great extent, a fight for labor's own jobs. Calling for "more bridges of understanding and cooperation" between railroad labor and management, Mr. Bateman declared that "a successful relationship between us requires broader understanding than can be encompassed in a union contract."

they all know the best place in Cleveland







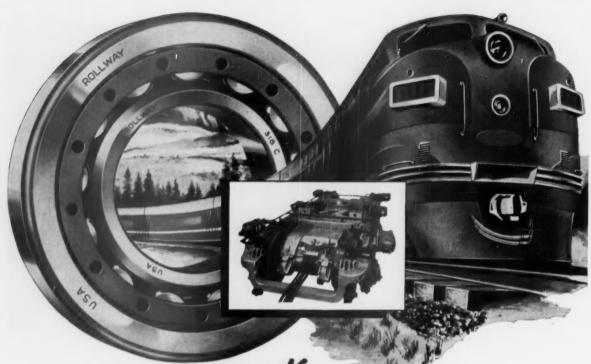
NORDBERG Power Chief Diesel Engines have been proved in numerous types of railroad service, including lighting service for special purpose passenger cars, as well as in furnishing the main power source for mechanical refrigerator cars.

Nordberg *Power Chief* Engines are low cost, medium speed units, ruggedly built for power jobs where 'round-the-clock performance is a must.

Built in 1, 2 and 3-cylinder sizes as straight power units with stub shaft or clutch power take-off...and as "packaged" generator sets, Nordberg *Power Chief* Engines are simple to install and easy to maintain—always ready to efficiently serve you 24 hours a day.

And remember—the design, operation and service of these husky power units are backed by the builders of America's largest line of heavy duty Diesels—from 10 to over 10,000 H.P.





Every Engine Crew Knows...

When the Pinion Bearing "Goes" the Train Must Stop...and Quick!



Squeezed into the tight space between the drivers, the pinion and commutator bearings of diesel-electric locomotives must be both compact and sturdy.

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That's why such a great number of the 21,000 diesel-electric locomotives now in use are equipped with Rollway Right-Angle Roller Bearings. Rollway's larger, longer crowned rollers, plus high precision roller-riding bronze retainer, minimize internal friction and heat . . . greatly reduce the hazards of bearing failure and seizure.

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Average freight car has only 1 hot box every 12 years

You can make it better than 1 in 24 Years with MAGNUS R-S JOURNAL STOPS

New development makes waste pack an efficient lubricator at the same time it reduces maintenance and servicing requirements

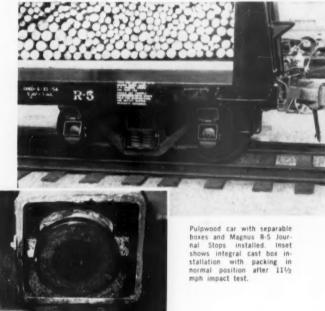
Do automobiles or trucks ever run 12 years without a road failure of a bearing? Chances are they don't—especially road-haul trucks. Very often the trucks themselves don't last that long.

Well, railroad solid bearing freight

cars do even better than that now—and these cars average 20 years old. In 1953, there were only 156,328 set-offs for the 2 million-odd freight cars operated over Class I railroad lines. That's only one set-off for each 12.8 cars per year—equivalent to each car having one hot box every 12.8 years.

How to Double This Good Record

Indications are that with the Magnus R-S Journal Stop railroads can cut the number of set-offs in half—double the car miles per hot box of any kind, and the miles per bearing too. Why? Because from 50% to 70% of all hot boxes are caused by waste, and this new low-cost device makes the conventional waste pack an efficient lubricator. First, it positively keeps the bulk packing where it belongs. Second, the bearing can't be cocked off its seat on the journal to trap lint or short strands beneath the bearing crown. And third, during braking or impacts the box can't rise to compress packing and interrupt the oil feed. Within given limits you main-



tain constant journal-to-packing pressures, and you get a constant feed of oil.

On one road, R-S Journal Stops have been in service for over two years. There hasn't been a bearing replacement—much less a hot box. And that's only half the story. To get it all, write to Magnus Metal Corporation, 111 Broadway, New York 6; or 30 E. Jackson Boulevard, Chicago 4.

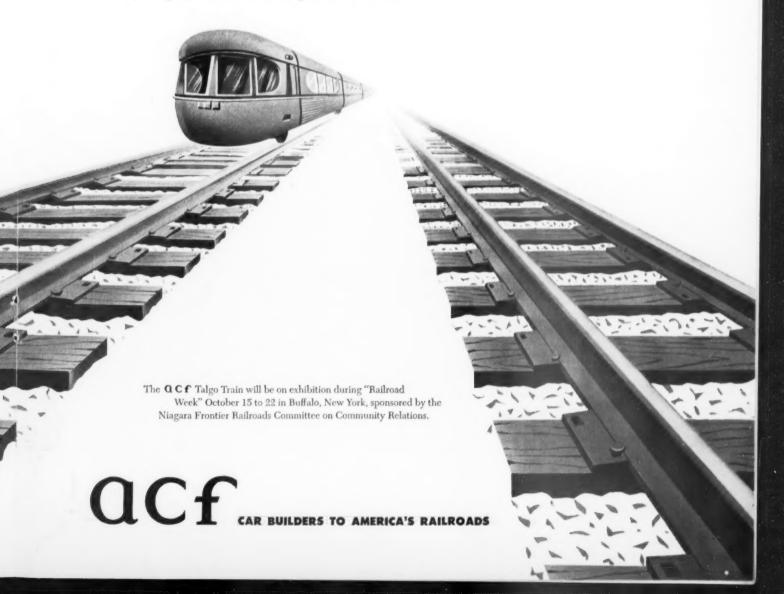


MAGNUS METAL CORPORATION Subsidiary of NATIONAL LEAD COMPANY



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Railroad management likes this door control unit because it is economical, reduces loss of heat and helps air-conditioning systems work more efficiently. Maintenance costs are low: the operator engine requires inspection and lubrication only once every two years.

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From a slower, more costly manual operation . . .



To the latest in electronic computers. That step is under study as the Great Northern tests...

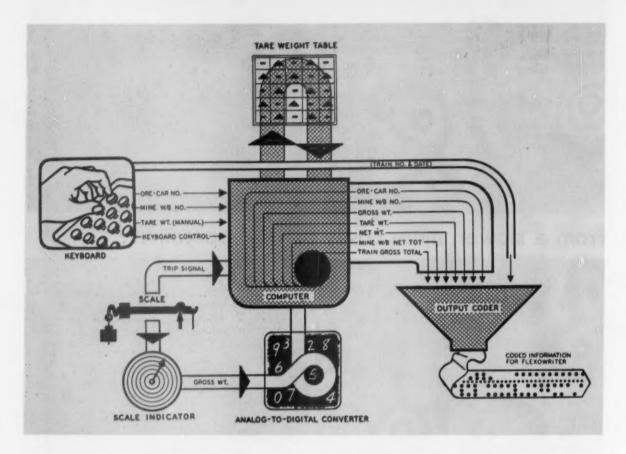
Weighing Ore by Electronics

An entirely new approach to the handling of iron ore movements on the Great Northern is embodied in an electronic computer undergoing tests at the GN scale house at Allouez yard, Superior, Wis.

The new device—an Ore-Car Data Processing Machine—is designed to speed the weighing of ore moving from the Iron Range to GN docks at Superior. Weight information will be produced quickly and automatically. Chances of clerical error will be greatly reduced, and mining companies will no longer need to operate by estimate in supplying ore for ships at the docks.

The new computer answers a need which the railroad and the mining companies have long recognized. Weighing of ore is an important phase of this complex transportation job. The former method of calculating weights manually was a bottleneck and the railroad was, so to speak, buried in paper work. The GN searched nearly five years before coming up with a solution. The procedure under test points toward greater mechanization of clerical work on the entire ore operation. The computer at Allouez is something of a first step. It is a move in the direction of a common language medium for processing mass data.

Engineering Research Associates, a division of Remington-Rand, developed the new machine. They entered the picture early in 1953 with an offer to design and



build a computer for handling the weighing of ore. Nine months after they were given the go-ahead, in July 1953, the computer was ready for testing. Unlike most machines of this type, the GN computer is "on-the-line" equipment. It is designed to handle "living" information, and during the annual ore season would be on 24-hour duty.

A Boon to Shippers

With the new computer in service the GN will be able to provide complete weight information on ore shipments in a matter of minutes. Data emerges from the computer via a punched tape. This tape can be processed quickly and the information forwarded by Teletype to mining companies and the GN docks. Such speed is important. As soon as mines receive a record of weights shipped, they can determine whether additional ore will be necessary to complete the loading of a ship. Guesswork is eliminated from the delicate job of providing different grades of ore in correct amounts to meet steel mill requirements. As a result, the mining companies will be in a better position with their customers. For the railroad the quick production of weight information will ease the old problem of "preference" ore-ore which the railroad is called upon to rush to the docks to finish loading out a vessel. In case more than enough ore has already been dispatched to the docks, the railroad will avoid over-dumping and the consequent tying up of dock space.

The GN's Iron Range operation involves the move-

ment of ore from mines near Hibbing, Minn., to the Superior docks, about 90 miles. The 180-car road trains cover this distance in 4½ hours, and Allouez yard, three miles from the docks, is the point where trains are broken up and classified. The yard receives a Teletyped advance consist on each train while the train is en route. This consist comes from the assembly yard (Kelly Lake, Nashwauk, Calumet or Canisteo) where the train originated. In addition, ore grade reports are received by Teletype direct from the mines. These advance reports ease the job of classifying ore of different ownerships into proper order for dock movement and the loading of vessels.

The scale and scale house at Allouez are on the hump and loaded ore cars are weighed at this point. When the cars cross the track scale the Ore-Car Data Processing Machine begins its operation. The gross weight of each car is registered on a scale indicator inside the scale house. This gross is then carried automatically into the computer through a device called the Analog-to-Digital Converter. The converter does what the name implies: It converts the gross weight into digit form.

As this step is in process the car number is entered manually by an operator seated at a keyboard in front of a plate glass window in the scale house. This operator also enters mine waybill numbers—one mine waybill covering, as a rule, several carloads of ore from a single mine.

Thus the computer is "fed," both automatically and manually, with its initial information. It takes this material and begins a complex job of digestion. Activated



AS LOADED CARS CROSS THE SCALE at Allouez Yard the gross weight of each car automatically enters the electronic computer.

by the entry of the car number at the keyboard, the machine reaches into its "memory," where the tare weights of all GN ore cars are stored, and fetches forth the tare weight for that particular car. This process is instantaneous. The tare weights are stored on "pegs," rather than in the usual magnetic drums, and entry of a car number at the keyboard has the effect of "dialing" the proper "peg." It is not unlike the operation of a dial telephone; in fact, the GN machine contains standard Western Electric crossbar switches, but the switches are wired in three dimensions, rather than two.

When the tare weight for a particular car is selected from its "peg," it is carried by wire to a series of adding machines where it joins with the gross. There a net weight is determined. The machine then retains this initial calculation while it adds others. When the run of cars comprising a single mine waybill has passed over the track scale, the computer strikes a net for the entire waybill. As a bonus it notes the number of cars covered by that waybill. This calculating-retaining process continues until the entire train has crossed the scale. Then the computer produces a total gross for the train, and is immediately ready for another.

The end product of the computer operation is a punched tape containing all the weight data. This tape has a key role in the subsequent handling of weight information. It is fed into a Flexowriter which turns out dock waybills at the rate of 120 words per minute. The dock waybills are used in the final processing of ore when it arrives at the docks for loading on ship-board.

Clerks who prepare these dock waybills enter some additional material to show the train number and date as well as code numbers for the route and conductor of the train, originating mine, grade of the ore, account number and "block" number representing final shipboard destination.

During the Flexowriter sequence another paper tape is produced. This second tape contains the weight data as well as the new material entered by the billing clerks. It is immediately routed for Teletype transmission direct to the mines and docks. This is the step which provides those points with the written abstract shortly after a train has cleared the scale. Later, this same tape is mailed to the GN's general offices at St. Paul. There it is used to produce punch cards automatically for compiling statistics and preparing reports.

The ERA computer at Allouez is expected to be



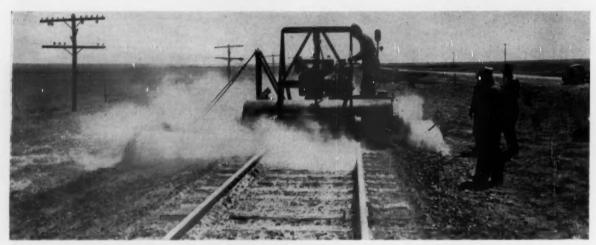
CAR NUMBERS and mine waybill numbers are entered manually at the console keyboard which is located inside the scale house.



END PRODUCT of the computer is a perforated tape. This tape is fed into Flexowriters (above) and dock waybills are produced at 120 words a minute.

extremely accurate. If it does go wrong it will flag its own errors. The computer inserts a stop code in the tape which halts the Flexowriter at that point and permits the billing clerk to make the correction. Basic calculations in the machine are performed on five adding machines. Two of these do nothing but doublecheck the net weight of each car and the subtotal for each mine waybill. As a further safety factor, the GN plans to attach a tape printer to the scale indicator. This device will print out car weights as the cars cross the track scale. It will serve as a "backstop," but will be used only if the computer fails.

There are actually two scales at Allouez yard, designated as "A" and "B." A separate keyboard and indicator have been installed for each but only one scale at a time can be operated with the main computer. This is not expected to create a problem because the new machine can weigh and process five to six cars a minute. However, the time saving and increased efficiency will really come in the subsequent handling of material which the machine produces. Under the old system the scale operator manually figured the weight of each car, and each run of cars in a mine waybill. Under the new arrangement, it will all be automatic.



TRACK BROOM, powered by gasoline engine, has rotating steel cylinder studded with 140 steel bristles for sweeping material into transverse conveyor which deposits it in windrow along track.

POWER BROOM DOES THE JOB . . .

Dirty Work in the "Dust Bowl"

Heavy accumulations of wind-blown material on Missouri Pacific main track in western Kansas and eastern Colorado removed with aid of machines

Of all the problems produced for the railroads by protracted droughts, dealing with drifting dust and sand is one of the most difficult. Such material, blowing across the right of way, can fill up side ditches, block culverts and even larger waterway openings, and result in heavy deposits of dust and sand in the track itself. On the Missouri Pacific, a variety of mechanized equipment, notably a rotary track broom, has proved successful in removing this objectionable material.

Rainfall last winter was far below normal in the territory traversed by the western portions of the MP line from Kansas City to Colorado. When the spring winds began to blow, the dried-out top soil was lifted in clouds reminiscent of the "dust-bowl" days of 20 years ago. The rails of the road's main line through the territory, which is flat terrain requiring only shallow cuts and fills, provided an ideal place for catching and holding the flying dust. Heavy deposits were built up between and outside the rails at many locations. This just wasn't loose dirt that could be easily removed; it became

packed into a hard mass that was reported to have almost the "consistency of concrete."

These dirt deposits occurred largely between Scott City, Kan., on the east and Sugar City, Colo., on the west, a distance of about 160 miles. The dust-covered stretches totaled about 43 miles. Officers of the railroad point out that the plowing of land adjacent to the tracks greatly multiplied troubles from wind-blown sand and soil.

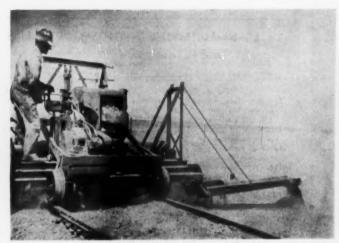
It was imperative that the dust be removed as quickly as possible. This was not only necessary in the interest of economical track maintenance, but there was danger

COST OF TRACK-CLEANING OPERATIONS

(Covering labor, fuel, lubricants and running rep	airs	only)	
Track broom and scarifier (average of 3 trips)	\$186	per	mile
Cleaning "eyes" with ballast forks	522	40	01
Ballast drainage car	. 7	**	
Cleaning ditches and fences with motor grader and crawler tractors	74	"	**
Total	\$789	81	01



BEFORE: Sand and soil covered some 43 miles of track, clogged ditches and, in some cases, completely buried fences.



LARGE VOLUME of material removed from track is indicated in this view by amount of discharge from end of conveyor. Kershaw track broom is self-propelled.



OFF-TRACK equipment, like this Caterpillar tractor-drawn scraper, cleaned side ditches and other portions of the right of way.

that a heavy rainfall might cause water to accumulate between the rails on top of the packed dust, thereby interfering with the track circuits. Because removal of the dust by hand would have been costly and time consuming, the problem resolved itself into one of finding suitable mechanical equipment to do it.

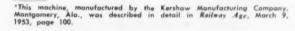
It was decided to try out a Kershaw Track Broom. One unit was obtained on a trial basis. This machine has a transverse rotating cylinder covered with replaceable steel bristles, which performs the sweeping action. The rotary brush, together with a transverse conveyor for disposing of material swept up, and the power plant, are carried on a self-propelled, four-wheel, track-mounted carriage. The unit is operated by one man.

Early experience with the track broom indicated that best results would be obtained if the packed material is first loosened. For this purpose a homemade scarifier drawn by a tractor was developed and put to use. After some modifications to fit the extremely rugged service, the track broom was reported to perform satisfactorily in removing the accumulated material between the rails and outside of them to the ends of the ties, depositing it in a windrow well outside the track section. After the first track broom had been in service about 30 days, another unit was acquired, which incorporated changes and improvements based on observation of the first unit.

There was still one knotty problem—removal of the packed accumulations of dust in the "eyes" underneath the rails and between the ties. Power equipment again proved the answer. Ingersoll-Rand pneumatic tamping guns, fitted with two-pronged forks, were found to work effectively in breaking up the material underneath the rails. Eight of the forks were acquired for this purpose and were divided into two four-tool outfits, each of which included a LeRoi Tractair for furnishing the air. The loosened material was raked out beyond the ends of the ties with shovels. A Fairmont ballast drainage car was used to push it out beyond the ballast shoulders.

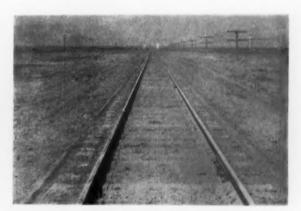
Where accumulations of the dust had filled side ditches and had piled up around the right-of-way fences various types of off-track grading equipment were used to open them up including graders and tractor-drawn scrapers.

The cost to the railroad of removing such wind-blown dirt is shown in the accompanying table.





FIRST: Hard-packed material was loosened by a tractor-drawn homemade scarifier, leaving track in condition shown here.



AFTER: Track after passage of track broom. Material under rails and between ties was then removed using pneumatic forks.



WIDE GAGE on curves is conducive to slippery track as oilsonked portion of wheel tread contacts outer edge of low rail.

Why Damp Rail Is Slippery

Driver-rail adhesion becomes uncertain when oxidized grease and a little moisture combine to spread a tough thin film on rails

By R. K. ALLEN

Locomotive and Car Equipment Department General Electric Company, Erie, Pa.

Wheel slip occurs most often in cuts and shaded areas, and is especially frequent in fog and misty weather. The onset of rain is a slippery time, but heavy continued rain gives good rail traction.

What is this seemingly anomalous behavior of nature? Actual adhesions developed by locomotives in the field have been measured as high as 42 per cent and as low as 12 per cent. What figure should be used? Common practice has selected the mean (25 to 30 per cent) as a design basis. However, equipment must be electrically and mechanically capable of short-time duty when higher adhesions are present. How often are they present?

Railroads have been harrassed by the wheel-slip problem. It has been responsible for much equipment damage

TABLE 1-ADHESIONS WITH VARIOUS FILMS

Maximum Contact Pressure — 75,000 Psi

	Static Coefficient	Film
Surface Condition	of Friction	Appearance
Surfaces—clean, wettable and either dry or covered with distilled water. Finishes from		.,,,,
150 grit cloth to 400.	.30 to .35	None
Thin layer of petroleum oil deposited over		
plate surface.	.20	Visible
Layer of petroleum oil on plate blown very		
thin with compressed air.	.21	Opaque
Plate with above petroleum oil film rubbed vigorously with clean cloth. (Friction co-		
efficient is a function of film thickness.)	.15 to .27	Invisible
Oil from fingers deposited over plate surface		
by direct contact.	.16 to .19	Opaque
Above film rubbed vigorously with clean cloth.	.10 to .13	Invisible
Oil from fingers allowed to spread over plate surface by contact with water. (Creep		and the
film.)	.18 to .21	Invisible

and has definitely shortened rail life through the prevalence of track burns. Of more importance, experience has dictated that train tonnages be based on not over 16 to 18 per cent adhesion for dependable operation. This means incomplete utilization of motive power.

To answer some of these questions, an investigation was undertaken. It began in the laboratory with an attempt to duplicate rail and wheel adhesion with two steel test pieces. Calculations show that the maximum contact pressure between a rail and a 40-in. wheel with a conventional diesel axle loading (60,000 lb) varies from 70,000 psi to 100,000 psi, depending on the amount of rail and wheel wear. The shape of the contact area is also a function of wear. For a wheel that is worn half way to its first turning and a rail with half of its main-line life spent, the contact area is nearly rectangular. Its corners are rounded, and it has a length along the rail approximately 1/3 of its width across the rail. The area of contact is between 0.4 and 0.5 sq in. The laboratory test apparatus (illustrated) was designed to stay as close to these actual conditions as possible.

Investigation of Films

The first efforts were directed toward determining the effects of rust films on adhesion. Rust films, varying from a mere trace to a deep reddish brown, were allowed to form on the flat test plate. None of them was found to be slippery. In general, the heavier the rust film, the higher the adhesion. The conclusion reached was that the rust film did not withstand 75,000 psi and, there, was not the slippery element for which we were looking.

During and following the rust film investigation, uniform breakaway adhesions could not be obtained when the test plate was in a supposedly clean and polished condition. The breakaway adhesion varied from 35 per cent to 10 per cent with no apparent difference in the plate surface.

At first, there seemed to be no good explanation of this phenomenon. Repeated measurements were made while attempting to control all factors in the preparation of the plate surface, such as degree of polish, cleanliness, and the time interval between polishing and making the measurement. After considerable investigation, a definite pattern began to appear between adhesion on the plate and the ability to wet it with water. When the plate surface would not wet with water, adhesion was low. Conversely, when the surface was wettable, adhesion was high. While an electroplating expert would have immediately spotted this tell-tale sign of film contamination, we were slower in recognizing its significance.

Then the question arose, what was this contamination? Several weeks of mystery surrounded the happenings on the surface of the plate until it was realized that oil from hands was the culprit. Even though the hands did not touch the top surface of the plate, it became contaminated

by water-propagated oil creepage.

The next question was, how does this creepage occur? Further investigation showed that one fingerprint on the highly polished steel surface, when moistened, was capable of spreading an invisible film over the entire plate surface. This reduced adhesion from 35 per cent to 15 per cent, even with 75,000 psi contact pressure. The difficulty in our cleaning method had been that in polishing the plate, the fingers touched its edge. When the polishing grit was rinsed from the plate, the water spread over the surface and reached the fingermarks.

The oil in the fingermarks consequently displaced the water from the plate surface and left an invisible oil film which prevented wetting of the plate. This effect was most pronounced with a high degree of surface polish.

The next step was to investigate the effect of using different oils. The same result was produced with a spot of whale oil, and with partially degraded (oxidized and volatilized) oil samples taken from rail heads. In each case, a minute quantity of the oil sample, when contacted with water, would creep over the entire plate and drastically reduce adhesion even though the contact pressure was 75,000 psi. In contrast to this, fresh machine and lubricating oil samples would float to the surface of the water, giving a rainbow-colored hue, but would not displace the water film by creepage action. This creep effect

TABLE 2—ADHESIONS UNDER VARIOUS TRACK CONDITIONS

MAIN-LINE-LEVEL TANGENT TRACK

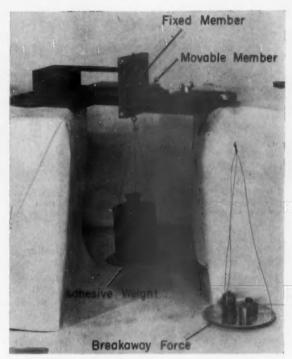
Adhesion	Factor	Track C	onditi	ons	Weather
.43 to	.25	Wettable	(film	free)	Cloudy, 67% relative humidity. Recent rain.
.30 to	.20	Not wetto	ble		80% relative humidity. Sun just beginning to shine.

BRANCH-LINE-2 PER CENT GRADE, TANGENT TRACK

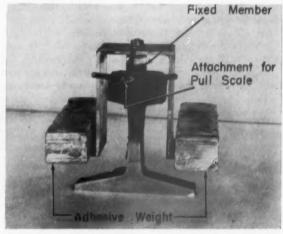
	DAMIA	CITETINE -2 FER CENT GRA	DE, TANGENT TRACK
.43	to .36	Wettable section (film free)	Cloudy overcast. 75% relative humidity.
.27	to .23	Not wettable section	
.25	to .16	Not wettable	Overcast. Extremely low ceiling. 87% relative humidity.

BRANCH-LINE-I PER CENT GRADE, SLIGHT CURVE, MOUNTAIN VALLEY

.27 to .17	Not wettable	Mountain by. Overc	Creek	near-
.15 to .10	Measurement on wear band of a rail coated with oil deposits.			



Essentially, the equipment (above) is for measuring the static or breakaway coefficient of friction. One member is a rigidly secured, barrel-shaped piece, 11/4-in. in diameter, with a 31/2-in. transverse radius. This piece incorporates both the curvature of the wheel and the crown of the rail. The movable member is a 2-in. by 5-in. flat plate. The adhesive weight was placed on a pan attached to a knife edge which loaded the fixed member. The breakaway force was determined by adding weights to a pan that was attached to the movable plate by a wire passing over a pulley. The test device was built to give 75,000 psi maximum contact pressure and an area shape factor of 3.12 to 1, when loaded to 12 lb. The two members of the device were machined from a section of 100-lb rail of approximately .70 carbon steel and testing 255 Brinnell hardness. The flat plate simulating the rail was left at this hardness. The barrel section was hardened to 300 Brinnell to bring it within AREA specifications for Class A and B locomotive wheels.



MODIFIED laboratory device which was used in field tests for measuring track adhesion.







HOW OIL GETS ON THE RAIL: Journal oil leaks to web of wheel and thence to the outer portion of the tread. Oily portion of tread (left) deposits oil on frogs (center),

switches and crossovers, but does not normally contact ordinary rail. On curved track, however, oil is deposited on edge of low rail (right) where gage is widened.

was to become the key to understanding fluctuating adhesions on steel rails.

As mentioned, creep films have breakaway adhesions as low as 15 per cent. If a surface contaminated with such a film were rubbed with a cloth, the adhesion dropped as low as 10 per cent. This rubbing action evidently tended to make the film more uniform and continuous. These films are capable of withstanding extremely high pressures without breakdown. An example of creep film is sometimes found on silverware. The expression "greasy spoon" is a good description of silverware that is contaminated by this oil film which prevents water from wetting the surface.

Non-creep films, where the oil floats to the surface, do not give as low an adhesion as is present with creep films. Rubbing the surface with a clean cloth will increase the adhesion factor when a non-creep film is present. It appears that the adhesion in this case is a function of film thickness. Generally films of this type are not as tough as the creep film and are more easily destroyed.

Field Work

The investigation was moved from the laboratory to the field to see if a correlation existed between conditions on actual rail and those of the test plate.

The wear band on main-line rail is a highly polished surface. It was found that on sunny days, this surface could be wetted with water. On some cloudy days, however, especially when the relative humidity was high, it could not be wetted. Following a heavy rain the wear band was always wettable and generally rust speckled. On particularly damp mornings when the band was not wettable, a greyish streaky discoloration would sometimes appear. A sample of this film was wiped up with filter paper and analyzed as follows:

86 per cent-Moisture

14 per cent—Residue (Oil—14 per cent; iron—5 per cent to 20 per cent estimated; silica—most of remainder; copper—trace.)

High percentage of water indicated that rail temperature was near the dew point. The residue was mostly iron and silica. This is accounted for by wear, and the fact that the track was frequently sanded since the location was on a 2 per cent grade. The significant thing was that 14 per cent of the residue was oil.

The next step was to correlate wettability of the wear

band with adhesion. For this study, the laboratory device was modified. The barrel member was fastened in a u-shaped holder containing an outrigging. A pull scale attached to the outrigging measured the pull necessary for breakaway. This in turn, gave a measure of adhesion.

Rail adhesion was found to be higher when the wear band was wettable, and lower when it was not wettable. Particularly low values were found whenever the measurement was made in the vicinity of oil deposits on the rail on a cloudy, damp morning. This was true despite the fact that the spot measured appeared, by visual examination, to be clean and free of oil. Table 2 shows the range of adhesion for various types of track and weather conditions. Except where noted, measurements were taken on wear bands free of obvious grease and oil.

All of the tabulated measurements were made on dry rail. Wettability was determined after the measurement was made. Additional tests were made after applying water to the rails. If the water was applied only to the wear band, and it was film-free, no change in adhesion factor was noted. In cases where the water contacted traces of grease or oil, a reduction in the adhesion factor was found to occur.

It should be emphasized that the above figures are static adhesion. Rolling adhesion will become less with increasing locomotive speed because of truck riding qualities, rail joints, etc.

Observations in Service

With the conclusion fairly well established by these readings that moisture-propagated oil films are a major cause of wheel slip, actual observations from the engine cab were undertaken. More than 1,500 miles of riding in mountainous territory cemented this belief. Wheel slips were recorded and marked by location.

Subsequent track inspections showed that 90 per cent of the slips occurred on curved track, at road crossings, switch points, frogs and crossovers, where oil deposits were present on the rail outside the wear band. An example of this is the buildup on a switch frog, which is shown in one of the illustrations. At switch points a similar buildup occurs on the stock rail.

The next question to be answered was, how does this oil deposit get on the rail? The outside face and outer (Continued on page 41)



Toledo Edison Company reports on its use of Autopositive-

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Shortly after Kodagraph Autopositive Paper was introduced, the Toledo Edison Company, Toledo, Ohio, began exploring its possibilities for engineering drawing reproduction.

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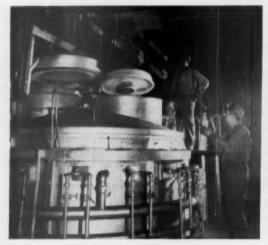
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Graphite molds, machined to extremely close tolerances, are used in producing the Griffin EQS. Note clean appearance. Special silica spray also helps give wheel its fine finish.



Pressure-pouring and electric quality steel—two significant factors that assure complete filling of the mold with steel of closely controlled analysis.



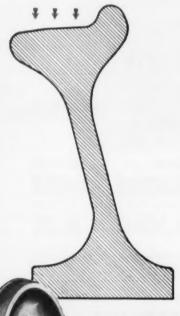
Normalizing in a temperature-controlled furnace, regulated to prevent decarburization. After removal, wheel is differentially control-cooled to room temperature.



Each Griffin EQS Steel Wheel is shot-blasted and given a 100% Magna-glo inspection. Taping for size completes its manufacture, and molds are immediately prepared for re-use.

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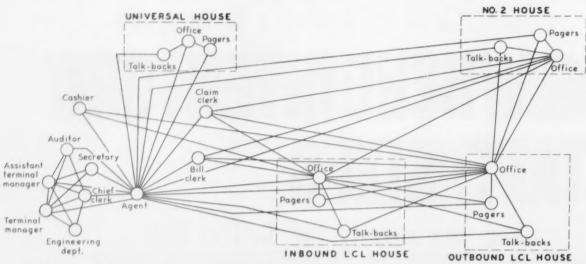


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NO SWITCHBOARD NEEDED as offices, paging speakers and talk-back systems are connected by direct wire.

Everybody's on This "Intercom"

New Orleans freighthouses of T&P equipped with two-way, voice-calling system which includes time-saving talk-back communications throughout

Improved service to shippers is an important benefit from a complete communications system installed by the Texas & Pacific in a large freighthouse at New Orleans. This house handles freight for the Texas & Pacific, the Missouri Pacific, and its subsidiary, the New Orleans & Lower Coast. The New Orleans & Lower Coast extends southward along the west bank of the Mississippi river 65 miles to Buras, serving the Seatrain terminal, and oil, sulphur and citrus territory.

The freighthouse extends practically east and west, with offices at the west end. Operations are under the general jurisdiction of the terminal manager, whose office is at the front on the second floor. The offices of the assistant terminal manager, the chief clerk, the secretary, engineering department, and auditor are in the western portion, second floor, near the office of the terminal manager.

Operations of the freighthouse and the remainder of the office forces are under the direct supervision of the agent. These offices, also on the second floor, include agent, chief clerk to agent, secretary to agent, bill clerks and claim clerks. The cashier's office is on the ground floor at the front of the building. The inbound LCL house extends eastward from the office. The main floor of this house is 70 ft wide and 550 ft long. A platform 8 ft wide with a canopy roof extends along the north side, where freight cars are spotted. South of the house is a paved area, where roadway vehicles back up to doors.

Throughout each day, trucks bring products from factories, stores, and docks to this freighthouse to be loaded into freight cars. This work increases to a large

volume by 2 p.m., and continues until 7 p.m. All freight received must be loaded in cars by 6:30 p.m., and all paper work finished, so that specified cars can be pulled and placed in a passenger train which leaves at 7:50 p.m. The remaining cars go in a fast freight which leaves at 9:30. About 16 to 18 cars are loaded in this house every working day.

About 15 scheduled cars arrive daily to be unloaded. (Continued on page 40)

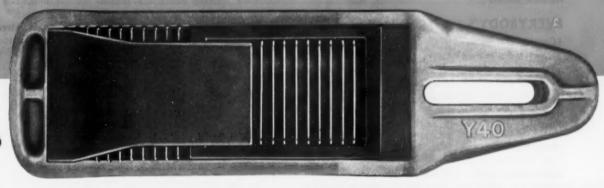
BENEFITS OF THE NEW SYSTEM

Before installation of the new system, the foreman, claim clerk and agent spent a great deal of time hurrying back and forth, or up and down stairs to get information on bills, rates and routings. Not only was this a waste of time, but it also caused some of the crews to be left idle. Now, direct calling and answering, over the intercom, makes it possible for the foreman, claim clerk and agent to get information they need in a hurry.

In the houses, the formen formerly did the best they could to be everywhere at once. Nevertheless, they often could not arrive until after trouble had developed. Now, with the pagers and talk-back speakers, the foremen are in touch with progress of all work in their respective houses. This eliminates cross-hauling and back-hauling; possible causes of congestion can be foreseen and avoided.

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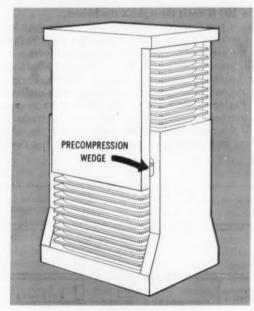


AAR APPROVED

and because it is PRECOMPRESSED

it is easily applied to the car without the use





THE FIRST IMPACT RELEASES
THE PRECOMPRESSION WEDGES

New Waughmat Single Action Twin Cushion WM-DC-5 consists of . . . 1 Housing—1519, 5 Waughmats—6480, 4 Dividing Plates—6480, 5 Waughmats—6458, 4 Dividing Plates — 6458 . . . completely assembled ready for application to any of the following A · A · R standard yokes: Rigid Shank Coupler Yoke (Y40)—Swivel Yoke (Y30)—Type F Interlocking Coupler Yoke (Y45)—Horizontal or Farlow Yoke.

OFFICIAL CAPACITY AT NOMINAL TRAVEL

28,500 ft. lbs.

OFFICIAL CAPACITY WITHOUT METAL CONTACT

51,600 ft. lbs.



"INTERCOM" UNIT allows the agent to call any of 12 separate offices.

EVERYBODY'S "INTERCOM"

(Continued from page 38)

On some days there may be as many as 25 cars handled. To the east of this LCL house is the outbound house, which consists of a roofed platform 80 ft wide and 280 ft long. This facility is used by the T&P to transfer freight from incoming city pick-up trucks to highway motor trucks that give store-door delivery in towns along the T&P as far west as Addis, La., 96 miles.

Operations in No. 2 House

A second freighthouse, parallel with and 140 ft north of the inbound house, is 40 ft wide and 818 ft long, with a covered platform about 8 ft wide on the south side. There are tracks for spotting freight cars loading or unloading in the 140-ft space between the two freighthouses.

This second house was built and originally used as an outbound house. Now both outbound and inbound conventional LCL merchandise is handled in the first house. Today the 220 ft at the east end of the second house is used by the TP-MP to handle large volume shipments. For example, a cargo from an incoming ocean ship, such as coffee in bags weighing 131 to 184 lb, is placed in this house for shipment in carloads or less-carloads via T&P or MP. Another typical operation is to assemble a sufficient number of bales of cotton to fill a cargo order for an ocean ship, due to sail on a certain day, or for consolidation into carloads, and switching to various compresses or warehouses. This 220-ft section of this building is known as the No. 2 house.

The remaining 598 ft of the west end of this building is used by the Universal Carloading Company. Each day, loaded cars of LCL freight arriving from different cities are unloaded in this Universal house.

Situated centrally on the main floor of the inbound house is the office of the foreman in charge of the crews working in this house. The office of the foreman in charge of loading and unloading trucks used by the T&P Motor Transport is at the west end of the outbound shed. In the second building, there are two offices, one in the No. 2 house for its foreman, and an office in the Universal house for the foreman.

The new system provides direct voice-calling, talk-back

loudspeaker communication between the offices of the agent, bill clerk, claim clerk, the foreman in each of the four houses, and the other offices. In each of the four houses there is a separate paging loudspeaker system, as well as small talk-back systems, which can be controlled locally by the foreman or by other supervisors or the agent. The circuits between the offices are direct wire connections, and do not go through any switchboard.

The agent uses an "intercom" unit at his desk. The talk-back loudspeaker is behind the grill on top of the unit. Below this grill are two rows of push buttons, totalling 22 buttons. By pushing one of these buttons (which stays down) the agent connects his set with the set in the office corresponding with button he pushed. Then he presses a long white bar which is the "Push-totalk" and "Release-to-listen" switch.

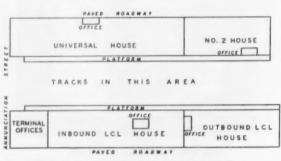
With this bar down, the agent speaks into the talk-back speaker above the buttons on his unit. For example, "Agent calling Motor Transport foreman." The foreman then pushes the "agent" button on his intercom unit (which stays down) and presses his push-to-talk switch, while speaking into the talk-back on his unit to answer the call. In the same way, the Motor Transport foreman can call the agent.

Likewise, calls may be made in either direction between the agent and a total of 12 offices, including those of the terminal manager, assistant terminal manager, chief clerk for terminal manager, secretary for terminal manager, auditor, bill clerk, cashier, claim clerk, foreman in the inbound house, foreman in Motor Transport, and foreman in No. 2 house.

The four foremen spend only a minor part of their time in their offices; usually they are out on the floors of their houses. The communication system had to provide means for calling these men and talking with them wherever they might be, without their having to return to their offices. This need was met by using paging speakers to broadcast calls, combined with small normally disconnected talk-back speakers located not more than 100 ft apart throughout the houses.

In a row down the center of each of the four houses is a series of paging loudspeakers, mounted 100 ft apart on the overhead beams. There are six such pagers in the LCL houses; two in the Motor Transport office; six in the Universal; and two in the No. 2 house. The pagers in any one house are connected to operate simultaneously. Paging speakers, spaced about 60 ft apart, are mounted overhead on the platforms adjoining the tracks.

If the agent calls the foreman's office in the inbound house and receives no reply, he assumes that the fore-



FREIGHTHOUSES, 800 ft long, are situated thus.

man is out in the house. Therefore, the agent pushes the button on his unit marked "inbound house paging." Then, when he pushes his push-to-talk button, and speaks into his talk-back, his call is reproduced on the paging speakers in the inbound house. Having put out such a call, the agent pushes the button on his set marked "inbound house talk-backs," and connects his set to the open circuit extending to the nine small talk-backs on the walls in the inbound house.

Meanwhile, the foreman, responding to the paging call, goes to one of the talk-backs. He pushes the button on top of the talk-back and holds it down both while talking and listening, until the conversation is finished. Normally, this talk-back is disconnected. Pushing the button connects it to the line. It operates as a "transmitter" or "receiver" as controlled indirectly by the

agent's push-to-talk switch. A small talk-back is practicable because the person using it must be close to it, to hold the button down.

By pushing the proper key on his desk unit, the foreman in any one of the four houses can put out a call on the house pagers in his area. He can talk to his crews or give orders to drivers of special lift trucks to go to certain cars. If the foreman wants to call one of his men, he uses these pagers to tell the man to go to the nearest small talk-back. Then the foreman cuts over to the talk-back circuit in his house.

The freighthouse communications system was planned and installed by the communications department of the Texas & Pacific, under the direction of M. R. Beamer, superintendent of communications, and under the direct supervision of John W. Hinkle, communications engineer.

WHY DAMP RAIL IS SLIPPERY

(Continued from page 34)

portion of the tread of many car wheels are soaked with journal oil leakage (see illustration). Normally, the outer portion of the wheel tread extends beyond the rail head and hence does not contact it. At frogs, switch-points, and crossovers, however, this oily portion of the tread comes into contact with the rail and lays down a deposit of oil.

A similar occurrence takes place on wide-gage curves. Car wheels entering the curve tend to shift toward the high rail. This causes the oil-soaked portion of the tread to contact the outer edge of the low rail and results in oil deposits, especially when the low rail is peened or badly flowed. If the gage exceeds 57 in., the oil deposit becomes pronounced, as illustrated in two of the photographs. The condition at road crossings is mainly oil contamination from highway vehicles which is spread over the rail.

Some curved track showed adhesions as low as 14.5 per cent, when measured from motor torque at 11 mph train speed. A definite relationship was also observed between the number of slips and weather conditions; damp, misty nights produce the most slips. Examination of yard tracks following a run on such nights showed they were not wettable.

How then does this cyclic appearance and disappearance of track film take place? Traffic and heat (such as sunlight) destroy the invisible film on the wear band. Without this film high adhesions are present. When a sudden rise in relative humidity takes place, the rails approach the dew point. This may be the result of the onset of rain, cool evening air in the mountains or low lying areas, etc.

If the rails reach the dew point, a thin, invisible, water vapor film forms on the wear band. As this film extends to the edge of the rail, it may contact a partially oxidized oil deposit. As soon as this occurs, a thin, invisible creep film of oil replaces the former vapor film. Now the wear band is covered with a thin invisible oil film capable of withstanding pressures in excess of 75,000 psi.

The smoother the surface, the more easily creep action will form this film. For this reason, the wear band on the rail—especially the highly polished manganese steel in frogs, crossovers, and other special work—is particularly susceptible to this film formation. The oil deposits act as reservoirs for the formation of the film. Heavy rain causes these films to attempt to extend themselves to infinity and in this way exhaust the available creep oil supply on the outer edge of the rail. Therefore, a heavy rain acts as a scavenger of creep oil from the rails and so restores good adhesion.

Static adhesion on these invisible creep films on the wear band has been measured as low as 16 per cent. In cases where the wear band has been covered with visible oil deposits in a partially degraded state, static adhesion on as low as 10 per cent has been observed. Add to this the effect of truck riding qualities and rail joints and the value could easily be low enough to account for even high-speed wheel slip.

This cyclic formation and destruction of wear band films accounts for the mystery of changing adhesion factors on the same rail. Sections of rail have been observed where the breakaway adhesion factor was between 35 and 42 per cent in the middle of a sunny afternoon. This same rail at 5 a.m. on a misty morning has had an adhesion factor as low as 16 per cent. Little wonder that heavy tonnage trains, operating in mountainous territory with many sharp curves, have difficulty keeping their feet when light rain or misty conditions are encountered.

Conditions are especially bad after several weeks of dry weather, since warm dry weather enhances the build-up of oil deposit reservoirs on the rail head. All that is required is for moisture to form on the wear band. This will spread a creep film on the rail and reduce adhesion so drastically that maximum tractive force cannot be sustained at lower train speeds. Under such conditions, the skill of the engineman many times spells the difference between a train stall and completion of the last mile of a difficult grade. If conditions are bad enough, even sand will not buy that last few per cent of adhesion necessary to sustain the required tractive force.

An understanding of the phenomenon of fluctuating rail adhesions has paved the way for an investigation of possible remedies. Work is being carried on to develop means to remove and prevent the oil film formation. The ultimate hope is to attain fair weather operation as an everyday reality.

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In the Diesel locomotive service shop, illustrated below, all track entrance openings are fitted with Mahon Power Operated Rolling Steel Doors. In this particular type of opening, and in thousands of other openings where door operating space is a critical factor, no other type of door so fully meets the requirements—because, Rolling Steel Doors in operation occupy no usable space inside or outside the opening . . . their vertical roll-up action permits use of floor space to within a few inches of the door curtain on both sides. And, there are no overhead tracks or other obstructions to interfere with crane handling adjacent to door openings. A Mahon electrically operated, quick-opening, quick-closing Rolling Steel Door will save valuable space and valuable time in any type of opening. In addition, Mahon Rolling Steel Doors are permanent—their all-metal construction assures a lifetime of trouble-free service and maximum protection against intrusion and fire. When you select a Rolling Steel Door, check specifications carefully . . . you will find extra-value features in Mahon doors—for instance, the galvanized steel material, from which the interlocking curtain slats are rolled, is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. You will find other quality materials and design features in Mahon doors that add up to a greater over-all dollar value. See Sweet's Files for complete information including Specifications, or write for Catalog G-55.

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STATEMENT required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233) showing the ownership, mangement, and circulation of Railway Age, published weekly at Orange, Conn., for October 11, 1954.

1. The names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, Simmons-Boardman Pub. Corp., 30 Church St., New York 7, N.Y.

Editor, James G. Lyne, 30 Church St., New York 7, N.Y.

Managing editor, Charles B. Tavenner, 30 Church St., New York 7, N.Y.

Business manager, Joseph S. Crane, 30 Church St., New York 7, N.Y.

2. The owners are: Simmons-Boardman Publishing Corp., 30 Church St., New York 7, N.Y. Stockholders of one percent or more, James G. and Louise Lyne, 30 Church St., New York 7, N.Y.; Arthur J. McGinnis, 30 Church St., New York 7, N.Y.; Conrad J. and Florence Wageman, 79 West Monroe St., Chicago 3, Ill., Joseph S. and Clarice Crane, 30 Church St., New York 7. New York; Frederick A. and Artimese B. Clark, 79 West Monroe St., Chicago 3, Ill.; Edward G. & Elizabeth Gavin, 79 West Monroe St., Chicago 3, Ill.; Edward G. & Elizabeth Gavin, 79 West Monroe St., Chicago 3, Ill.; Edward G. & Elizabeth Gavin, 79 West Monroe St., Chicago 3, Ill.; Joseph or Katherine Sanders, 2909 Maple Ave., Dallas 4, Texas, Mae E. Howson, 6922 Paxton Ave., Chicago, Ill.; Ella L. Mills and Catherine S. Mills, Westfield, N.J.; Ruth Wheaton Johnson, 1615 Ravenna Blvd., Seattle 5, Wash.; William E. Russell as Trustee L/W/T of Ida R. Simmons F/B/O, Mrs. E. S. Fenton, & Russell and Russell, 41 East 42nd St.,

New York 17, N.Y.: J. Streicher & Co., 2 Rector St., New York, N.Y.; partners of J. Streicher & Co. are: Joseph Streicher, Jack L. Streicher. Ethel Streicher, Judson Streicher all of 2 Rector St., New York, N.Y.: J. V. McManus, 39 Broadway, New York, N.Y.

The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and triweekly newspapers only.) 16,440.

JAMES G. LYNE.

Editor

Sworn to and subscribed before me this twenty-seventh day of September, 1954,

EDMUND J. PUYDAK.

Notary Public, State of New York No. 41-3179300

Qualified in Queens County

Certs, filed with New York Co, Clk. & Reg.

[SEAL]

(My commission expires March 30, 1955)

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- b. Manufacturers' Catalog Section.
- c. Classified Product Directory Section.
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10 West Orange Avenue South San Francisco, California Phone: Plaza 6-0300, Ext. 125

ACF Industries, Inc	23
Atkinson Co., Guy F	46
Bank of New York, The	6
Bateson-Stolte	46
Bethlehem Steel Co	1
Classified Advertisements	46
Eastman Kodak Co. Agency - J. Walter Thompson Co.	35
Fairbanks Morse & Co Inside Front Co.	vei
General Railway Signal Co Back Co	ver
General Steel Castings Agency—Oakleigh R. French & Assoc.	17
Griffin Wheel Co	37
Hotel Cleveland	21
International Steel Co Inside Back Co Agency W. S. Kirkland Adutg.	ver
Iron & Steel Products, Inc	46
Magnus Metal Corp	23
Mahon Co., R. C. Agency - Anderson, Inc.	42

Mississippi Valley Equipment Co	46
National Cash Register Co., The	18
National Motor Bearing Co., Inc	14
National Pneumatic Co., Inc	26
Nordberg Mfg. Co	.21
Prismo Safety Corp	43
Railway Educational Bureau, The	46
Railway Maintenance Corp	20
Ryerson & Son, Inc., Joseph T	46
Rollway Bearings	22
Statement of Ownership	43
Thrall Car Mfg. Co	19
Union Switch & Signal Agency-Batten, Barton, Durstine & Osborn, Inc.	2
Waugh Equipment Co	39
Westinghouse Air Brake Co	4
Wine Railway Appliance Co., The Front Co	ver

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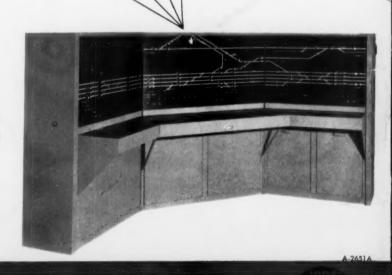
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